



**Challenge TB - Afghanistan
Year 2
Annual Report
October 1, 2015 – September 30, 2016**

November 3, 2016

Cover photo: Dr. Feruzudin Feruz, His Excellency the Ministry of Public Health inaugurating the digital X-ray machine in Mazar-e-Sharif

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List of abbreviation and acronyms

AADA	Agency for Assistance and Development of Afghanistan
AFB	Acid fast bacilli
BARAN	Bu Ali Rehabilitation and Aid Network
BDN	Bakhtar Development Network
BPHS	Basic package of health services
CAF	Care of Afghan Families
CB- DOTS	Community Based DOTS
CCM	Country coordination meeting
CDC	Centers for Disease Control and Prevention
CHS	Community Health Supervisor
CHWs	Community health workers
CTB	Challenge TB
DOT	Direct observation Treatment
DOTS	Direct Observed Treatment Short course Strategy
EPHS	Essential packages of hospital services
GCMU	Grant and Contract Management Unit
GF	Global Fund
HCWs	Health Care Workers
HF	Health facilities
HHC	Household contact
HMIS	Health management information system
IC	Infection control
IEC	Information, education and communication
IJTL	International Journal of TB and Lung Diseases
INH	INH preventive therapy
IPT	Isoniazid preventive therapy
KNCV	KNCV Tuberculosis Foundation
M&E	Monitoring and evaluation
MDR	Multi Drug resistant
MoPH	Ministry of Public Health
MOVE	MOVE Welfare Organization
MRCA	Medical Refresher Courses for Afghans
MSH	Management Sciences for Health
NGO	Non-governmental organization
NTP	National TB control program

OPHM	Organization for Health Promotion & Management
OR	Operational Research
ORCD	Organization for Research and Development
PHO	Provincial Health Office
PPM	Public private mix
PRs	Principals recipients
PTC	Provincial TB coordinator
RRL	Regional Reference Laboratory
SAF	Solidarity for Afghan Families
SOPs	Standard Operational Procedures
SRs	Sub-recipients
SS+	Sputum Smear Positive
TB	Tuberculosis
TB IS	Tuberculosis information system
TBIC	Tuberculosis infection control
UNDP	United Nation of Development program
USAID	United States Agency for International Development
WCTH	World Conference on TB and Lung Health
WHO	World Health Organization

Executive Summary

The Challenge TB (CTB) project in Afghanistan, funded through United States Agency for International Development (USAID) began on January 1, 2015 and will end on September 30, 2019. CTB in Afghanistan is implemented by lead partner Management Sciences for Health (MSH). The local partners implementing CB DOTS are: MOVE Welfare Organization (MOVE), Bu Ali Rehabilitation and Aid Network (BARAN), Agency for Assistance and Development of Afghanistan

(AADA), Bahter Development Network (BDN), Organization for Health Promotion & Management (OPHM), Solidarity of Afghan Family (SAF), Care of Afghan Families (CAF) and ORGANIZATION FOR RESEARCH AND DEVELOPMENT (ORCD).

In August 2015, the scope of work for the second year of CTB Afghanistan was prepared jointly by CTB/MSH, the NTP as well as the USAID Kabul team. The interventions included the implementation of community-based (CB)-DOTS, Urban DOTS and tuberculosis (TB) infection control (TBIC). Other interventions such as the implementation and expansion of the electronic reporting and recording system (ERR, TB surveillance), monitoring and evaluation (M&E), political commitment to DOTS and leadership cover the whole country. In Year 2, the CTB project was implemented in 44% (15/34) of provinces covering a total population of 17.5 million (60% of the country's population of 28.5 million). During the second year of CTB, the project assisted NTP in the following technical areas:

1. Enabling environment: Within this technical area, CTB expanded and implemented CB-DOTS in 15 provinces;
2. Patient-centered care and treatment: Within this technical area CTB implemented and expanded urban DOTS in five major cities;
3. Infection control;
4. Political commitment and leadership;
5. Quality data, surveillance and M&E;

Contribution to diagnosis and treatment

CTB Afghanistan assisted the NTP to increase access to TB services, identify more TB cases and put them on treatment. During Year 2, the project assisted the NTP to scale up urban DOTS to 32 health facilities (HFs) in the five cities of Kabul, Jalalabad, Kandahar, Herat and Mazar-e-Sharif. Currently, there are 169 public and private HFs that implement DOTS in all five cities. Moreover, CTB facilitated the implementation of CB-DOTS in 15 Afghan provinces. During Year 2, 2,277

(1,705 male/572 female) health care workers (HCW) were trained on Standard Operating Procedures (SOPs) for TB case detection and treatment, on-the-job training, TBIC, TB data collection and electronic reporting. Additionally, DOTS implementation was expanded to drug treatment and diabetic centers to provide TB screening services to drug users and diabetic patients. In brief, 3,397 drug users screened, 416 (12%) presumptive TB patients identified and tested for TB and found 26 (6%) bacteriologically confirmed and one as Rifampicin resistance TB case. The yield of bacteriologically confirmed TB cases among drug users is 765 in 100,000 population that is just under 10 times that is WHO estimate for BC TB cases. Also, 2,468 diabetic patients screened, 157 identified as presumptive TB and tested through GeneXpert technology, 13 diagnosed as BC and 3 as clinically confirmed pulmonary TB cases. All of them put on treatment. This shows a TB case notification of 648 in 100,000 diabetic patients. Yield of TB among diabetes in Afghanistan is 3.5 times higher than general population. The expansion and implementation of APA2 case notification activities resulted in a projected 14% increase in notification of all forms of TB cases from 24,903 in 2015 to 28,358 in 2016. The NTP initiated treatment for all of the notified cases to date. In 2016, 72% of all notified TB cases in Afghanistan were diagnosed in CTB-supported areas, which covers 60% of the total population.

Since 2014, contact investigation has increased by 60% (25,318 individuals in 2014 compared to 42,842 in 2016). There has also been a 41% improvement in the number of diagnosed bacteriologically confirmed cases and an 88% improvement in the number of diagnosed all form TB cases. There were 2,173 patients among a population of 100,000 close contacts to TB patients (a case notification rate that is 11 times higher than the WHO estimated incidence of 189 patients in a 100,000 population). Additionally, 6,380 children were identified and put on Isoniazid preventive therapy (IPT) that shows an increase of 98% child household contacts identified and put on IPT compared to 2015.

Contribution of Urban DOTS implementation

From October 2015 through September 2016, CTB helped the NTP to expand urban DOTS to 32 public and private HFs. During Year 2, Urban DOTS covered 169 (39%) HFs (92 in Kabul and 77 in four other Urban DOTS cities), compared to 120 health facilities in 2015. In addition, CTB trained 654 (102 females, 552 males) health care staff such as doctors, nurses, and laboratory technicians to follow SOPs for TB case findings, treatment, IC and sputum smear microscopy in urban settings. As a result, the health care staff in the five urban DOTS cities identified 59,374 presumptive TB patients and diagnosed 11,458 TB cases (all forms) including 3,850 bacteriologically confirmed TB cases. Urban DOTS implementation led to 23% diagnosis for bacteriologically confirmed and 30% of all forms of TB cases in Afghanistan. Among all TB cases, 1,858 (16% of all cases) were children (0–14) years old. The treatment success rate for urban Kabul improved by 4% from 73% in 2014 to 77% in 2015.

Contribution to CB-DOTS implementation

CTB assisted the NTP to ensure access to TB services in hard to reach areas in 15 provinces. CTB subcontracted CB-DOTS implementing organizations with basic package of health services (BPHS) in 14 provinces aiming at increasing the local capacity for TB and ensuring sustainable DOTS implementation. CTB/MSH implemented the DOTS in one Pakiya province. During Year 2, DOTS coverage increased by 11%, from 391 (45%) HFs providing CB-DOTS in September 2015 to 493 (56%) providing DOTS in September 2016. Simultaneously, the number of presumptive TB patients referred by community health workers (CHWs) increased by 9%, from 14,659 (12%) in 2015 to 29,000 (21%) in 2016. Furthermore, the number of bacteriologically confirmed TB cases referred by CHWs and diagnosed as TB improved by 7%, from 787 (14%) to 1,542 (21%) and the number of TB cases put on treatment under direct observation from CHWs improved by 13%, from 873 (12%) of TB cases in 2015 to 1,765 (25%) in 2016.

M&E, surveillance and operational research

CTB assisted the NTP to sustain high quality M&E, surveillance and operations research (OR). The electronic reporting of TB data was sustained and promoted. During Year 2, CTB assisted the health management information system (HMIS) and surveillance department of the NTP to train 140 NTP and BPHS implementing organizations staff such as provincial TB coordinators and HMIS officers from provincial public health offices and from BPHS implementing organizations. This training led to an improvement in TB data completeness and timeliness by 58%, from 37% in quarter two of 2014 to 95% in quarter three of 2016.

TBIC Contributions

In Year 2, 330 health staff (100 female/230 male) were trained on TBIC control strategies and standards. The structural design and engineering approaches of sixty additional HFs were assessed to reduce airborne infections - primarily TB transmission - within the settings. Plans for the re-designing and improving engineering approaches were developed and shared with BPHS implementing NGOs and the NTP for implementation. To strengthen the integration of the TBIC plan into the general infection prevention plan and track the progress, 60 additional HF level TBIC committees were established and 400 monthly meetings were conducted. Challenge TB has been focusing on the implementation and has followed up on the TBIC process indicators that led to reducing TB suspect patient's identification time after his/her arrival to departure time. The CTB TBIC efforts have also led to reduced time from diagnosis to treatment initiation.

Execution of TB result conference

CTB assisted the NTP to conduct the first ever national TB Results Conference aimed at promoting evidence-based decision-making and enhancing research within the TB program and health sector at large; informing policy makers, donors, and partners with updated knowledge on TB; and sharing new knowledge (research assessments, and results) with the wider academic and public health community in Afghanistan. In total, there were 118 participants (9 female, 109 male) at the conference and 30 posters and 9 presentations were delivered. His Excellency the Minister of Health appreciated the event and encouraged other departments to engage in same events.

Conduction of annual national evaluation workshop

The periodic program review is incredibly important for TB in Afghanistan as it helps monitor the progress towards the indicators that were created during 2015. The 2016 annual evaluation workshop was conducted with the participation of more than 120 senior leadership from the MOPH, provincial Communicable Disease Control CDC department, PTCs, provincial laboratory supervisors, NTP central unit team, Grant and Contract Management Unit (GCMU), partners (CTB/MSH, WHO, UNDP/GF, JAICA) and BPHS implementers. They reviewed the NTP's performance in 2015 and set targets for 2016. The conclusion was that the TB program emulated well and it sustained the case notification in the country and that the country notified 37,001 TB cases (all forms) in 2015. Similarly, in 2014, the TB program sustained a treatment success rate of 89% (compared to 90% in 2013).

1. Introduction

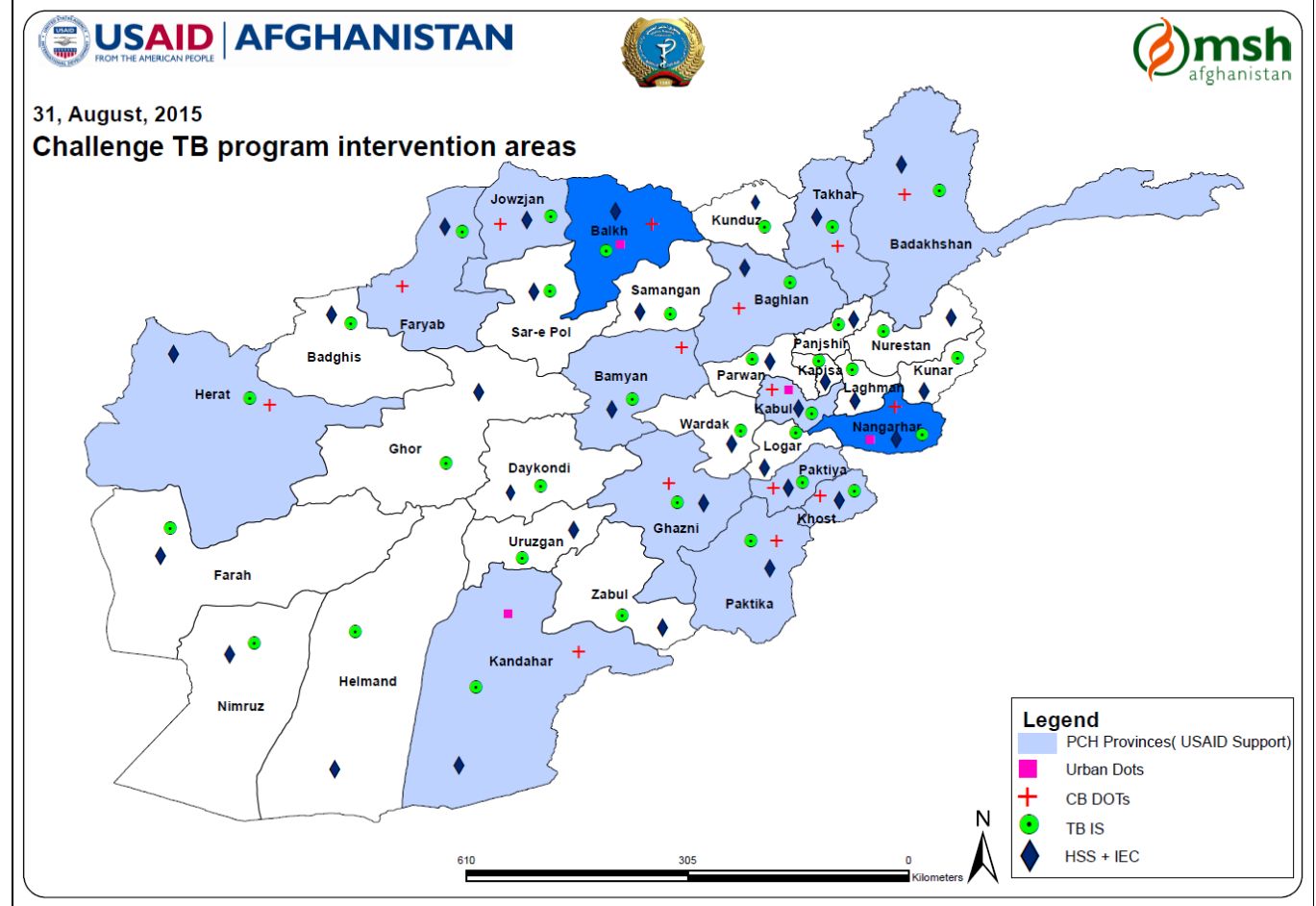
Challenge TB (CTB) is USAID's five-year mechanism contributing to the global targets of TB control. An international coalition of organizations is responsible for implementing the five year USAID CTB project to accelerate the global fight against tuberculosis (TB). The CTB coalition includes KNCV Tuberculosis Foundation (KNCV) (Prime Recipient), American Thoracic Society (ATS), Family Health International (FHI 360), Interactive Research & Development (IRD), Japan Anti-Tuberculosis Association (JATA), International Union Against Tuberculosis and Lung Disease (The Union), Management Sciences for Health (MSH), Program for Appropriate Technology in Health (PATH), World Health Organization (WHO)

The CTB project in Afghanistan began on January 1, 2015 and will end on September 30, 2019. CTB in Afghanistan is implemented by lead partner Management Sciences for Health (MSH) with coalition partner KNCV (responsible for providing remote assistance). In August 2015, the scope of work for Year 2 CTB Afghanistan was prepared jointly by CTB/MSH, the NTP as well as the USAID Kabul team. The interventions included the implementation of CB-DOTS, Urban DOTS, TB IC. Other interventions such as the implementation and expansion of the electronic reporting system (TB surveillance), M&E, political commitment to DOTS and leadership cover the whole country.

In Year 2, the CTB project has been implemented in 15 provinces (See map 1, below) covering a total population of 17.5 million (60% of the country's population of 28.5 million). During the second year of CTB, it assisted NTP in the following technical areas:

1. Enabling environment: Within this technical area, CTB expanded and implemented CB-DOTS in 15 provinces;
2. Patient-centered care and treatment: Within this technical area CTB implemented and expanded urban DOTS in five major cities;
3. Infection control;
4. Political commitment and leadership;
5. Quality data, surveillance and M&E.

Map 1: Challenge TB Program Intervention Areas



Strategies for CTB Afghanistan 2015-2019

CTB Afghanistan's main goal is to assist the NTP to reach its strategic objective of increasing TB case notifications by at least 6% annually through the provision of quality TB services to needy communities countrywide. The project focused on 15 provinces and implemented the following strategies to reach its strategic objectives:

1. Strengthening leadership and management for TB control at the provincial level;
2. Increasing TB case notification and improving the quality of care;
3. Strengthening health systems to minimize the existing gap in TB case notification;
4. Implementing TB IC to reduce the risk of TB transmission in health care facilities;
5. Strengthening monitoring & evaluation and operational research.

2. Country Achievements by Objective/Sub-Objective

Objective 1. Improved Access

Sub-objective 1. Enabling environment

CB-DOTS is an approach that ensures access to TB services to people living in the most remote and hard to reach areas of Afghanistan. During Year 2 of the project, CTB assisted the NTP to advance the DOTS coverage and increase access to TB services in remote and hard to reach areas through the implementation of CB-DOTS in 15 provinces (only 13 provinces were covered during the previous USAID funded projects TB CAP and TB CARE I. During APA1 (January 2015 to September 2015), there were no CB-DOTS activities due to the delayed vetting process of local subcontractors.

During APA2, CTB assisted the NTP to expand the CB-DOTS approaches to the two new provinces of Nangarhar and Balkh. CTB implemented CB-DOTS through subcontracts with local non-governmental organizations (NGOs) in 14 provinces and implemented CB-DOTS in Paktya province in partnership with the provincial health office, local organizations and the NTP. CTB implemented CB-DOTS through a partnership for TB through BPHS and EPHS implementing organizations in Kandahar, Herat, Paktika, Khost, Bamyan, Kabul, Nangerhar, Balkh, Baghlan, Takhar, Badakhshan, Jowzjan, Ghazni and Faryab provinces and for Paktya and second cluster of Ghazni through provincial public health team (PHO). The local partners are: MOVE, BARAN, AADA, BDN, OPHM, SAF, CAF and ORCD. The CB-DOTS approach includes the following package:

- Comprehensive trainings for CHS, CHWs and other community members who are involved in TB services;
- Monthly TB review meetings for CHWs and other community members who are involved in TB services;
- Regular supervisions at various levels from the center to community level;
- Provision of transportation costs for those CHWs or community members who have referred confirmed TB cases and provide treatment for them (DOT);
- Identification and appreciation of best performing CHWs and facility health workers;
- Different types of awareness events to reduce stigma and increase community knowledge on TB, distribute different types of IEC materials at various levels of community, install billboards in crowded parts of community and broadcast TB messages through local media;
- Improving local NGOs/BPHS implementers' and PHO's staffs on DOTS leadership and management;

Key Results

CTB assisted the NTP to ensure the smooth implementation of CB-DOTS activities through BPHS implementer NGOs in 14 provinces and Paktiya and the second cluster of Ghazni provinces. For Paktiya, USAID did not clear the vetting process for the BPHS implementing organization, Medical Refresher Courses for Afghans (MRCA). Thus, CTB and the NTP decided on an alternative for CB-DOTS implementation in these provinces and started implementing through CTB/MSH and the provincial health team. As a result, the CB-DOTS coverage reached to 95% (from 391 in 2015 to 493 HFs in 2016). Moreover, the NGOs used project funding to train 14,000 CHWs on the identification of presumptive TB patients (PTPs) in their villages and referrals to HFs for diagnosis and the provision of DOT. This was followed by on-the-job trainings and supportive supervision and 982 supervisory visits to HFs in all 15 provinces. Moreover, CTB assisted the NTP and NGOs to develop a partnership for TB. One hundred and sixty eight taskforce meetings and patient *shuras* (councils) were developed and meetings were conducted. Additionally, the CTB team oriented 2,602 family health action group members on TB in Paktika, Khost, Balkh, Jowzjan, Baghlan, Badakhshan and Takhar provinces.

In short, the implementation of CB-DOTS in 15 provinces of Afghanistan led to the notification of 29,000 PTPs (a 9% increase compared to 2015) (See Table 1).

CB-DOTS efforts also led to a 2% increase in the number of all form TB patients diagnosed between 2015 and 2016 in 15 intervention provinces (from 860 in 2015, to 1,758 in 2016) (See Table 1). Also, there is 8% increase for bacteriologically confirmed TB cases comparing 2009 and 2016, from 350 TB cases in 2009 to 1,543 in 2016. Ultimately, the number of TB patients under treatment from CHWs increased from 360 in 2009 to 1,765 in 2016.

Finally, the CB-DOTS implementation led to an increased number of TB patients receiving DOTS from CHWs. In 2016, 1,765 (25%) of all forms TB cases received their treatment from a CHW, a 13% increase compared to 2015, in which 875 (12%) patients received treatment from a CHW (see Table 1).

Table 1: Trend of CB-DOTS contribution to case notification and treatment outcomes in 15 provinces, 2009-2016

Indicator	Years							
	2009	2010	2011	2012	2013	2014	2015	2016
	TB CAP (4 provinces)		TB CARE I (13 provinces)				CTB 15 provinces	
# and % of presumptive TB patients referred by community health workers and community volunteers	6,780 (16%)	16,386 (17%)	26,803 (26%)	23,220 (24%)	14,885 (14%)	13,035 (19%)	14,659 (12%)	29,000 (21%)
# and % of community-referred bacteriologically confirmed TB patient	359 (14%)	710 (24%)	810 (26%)	1,482 (17%)	1,089 (14%)	1,291 (16%)	787 (14%)	1,543 (21%)
# and % of TB patients (all forms) referred by community	NA	NA	NA	NA	NA	NA	860 (11%)	1,758 (13%)
# and % of TB patients under treatment by community	360 (17%)	679 (23%)	1,294 (27%)	996 (30%)	1,300 (33%)	1,268 (28%)	875 (12%)	1,765 (25%)
Treatment Success rate in intervention provinces	83%	87%	89%	93%	95%	96%	96%	NA

Note: During 2009-2011, the USAID funded TB CAP project implemented CB-DOTS in four provinces. During 2011-2014, the TB CARE I project expanded CB-DOTS to 13 provinces and the CTB project currently implements the intervention in 15 provinces.

Table 2: Outcomes of CB-DOTS implementation

#	Outcome Indicators	Indicator Definition	Baseline (Year/ timeframe)	Target	Result
				Y2	Y2
1	# and % of HFs provided CB-DOTS services	The denominator is # of all HFs in province and the numerator is the # of HFs which is involved and providing CB DOTS services in province.	391 (45%)	50%	56% (493)
2	# and % of presumptive TB cases referred by community health workers (CHWs) and community members	The denominator is # of all presumptive TB cases in the province and the numerator is the % of presumptive TB cases which are referred to HFs by community and community health workers in province.	2,946 (3%)	30%	23% (22,569; Oct 2015- Sept 2016)
3	1.1.12 # and % of bacteriologically confirmed TB cases referred by CHWs	The denominator is # of all bacteriologically confirmed TB cases in province and the numerator is the % of bacteriologically confirmed TB cases referred by the community and CHWs.	1,118 (20%)	25%	1,560 (27%)
4	Positivity rate	The denominator is # of presumptive TB cases referred by community and CHWs and the numerator is the % of bacteriologically confirmed TB cases diagnosed out of presumptive Tb cases referred by community and CHWs.	(10%)	10%	1,560/22,569 (7%)
5	# and % of all forms of TB cases referred by CHWs	The denominator is # of all TB cases in the province and numerator is the % of all TB cases which were referred by community and CHWs. This indicator will be disaggregated by age (under the age of five and over the age of five)	2,315 (20%)	25%	2,295 (19%)
6	# and % of TB patients received direct observed	The denominator is # of all forms of TB patients started their treatment in the province and the numerator is # of all forms of TB	1,832 (25%)	35%	2,270/8,953 (25%)

	therapy (DOT) by CHWs	patients started their treatment by community or CHW.			
7	Treatment success rate	The denominator is # of all bacteriologically confirmed TB cases started treatment in province, the numerator is # of bacteriologically confirmed TB cases cured.	84%	86%	90%

Sub-objective 3. Patient-centered care and treatment

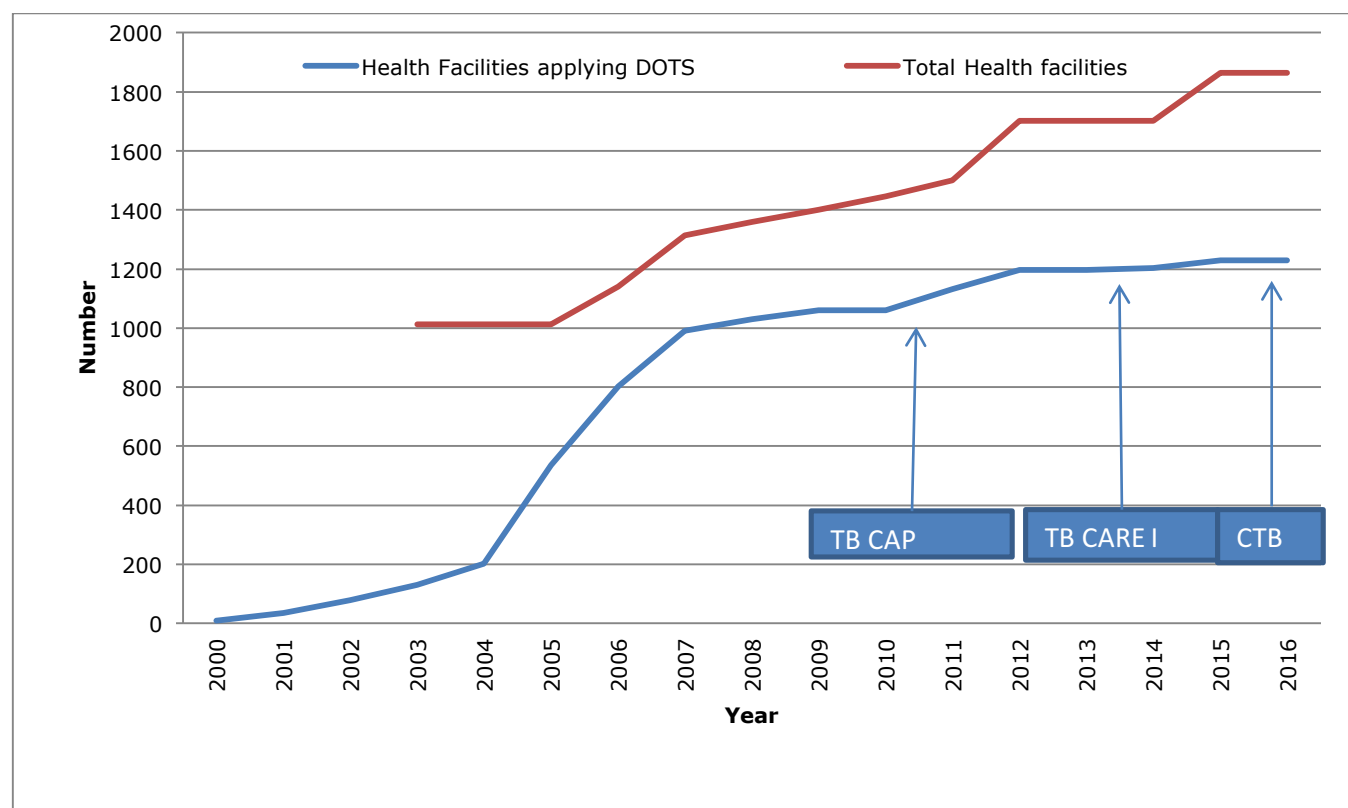
The largest challenge of TB control in Afghanistan is low case detection. CTB has been supporting the NTP to improve TB case notification through the implementation of SOPs for case detection in five Urban DOTS cities and CB DOTS provinces and by enhancing contact investigation in five provinces. For instance, urban DOTS was expanded further to additional provinces and health facilities, CTB-DOTS implementation extended to two more provinces and it subcontracted with local organizations that implement BPHS and EPHS in 14 provinces. Furthermore, the SOP implementation for TB case detection and treatment was enhanced through the training of health care staff and through the promotion of contact investigation to five provinces.

Contribution of standard operation procedures implementation

DOTS coverage:

In 2011, there were only 10 health facilities providing DOTS. This limited the Afghan population's access to TB services, however, the NTP increased access to TB services through the integration of TB services into the general health system and increased the number of health facilities with TB programs, reaching over 1,200 health facilities in 2016 (See Figure 1). CTB's role in this expansion was significant through the urban DOTS and CB DOTS programs.

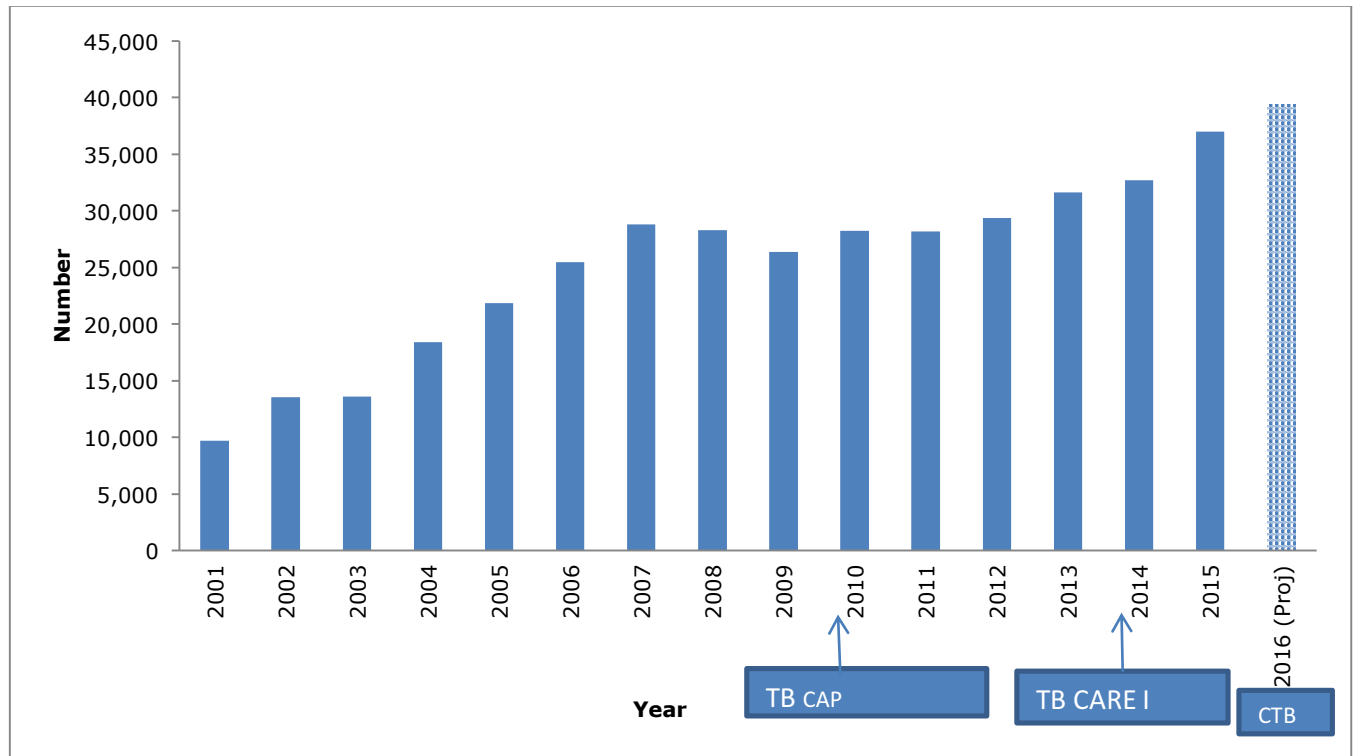
Figure 1: Trend of DOTS coverage in Afghanistan, 2000-2016



Case notification:

In the past 15 years, there has been a noticeable improvement in TB case notification in Afghanistan. For instance, in 2001 there were just over 9,000 TB cases notified and over 39,000 cases notified in 2016 (See Figure 2).

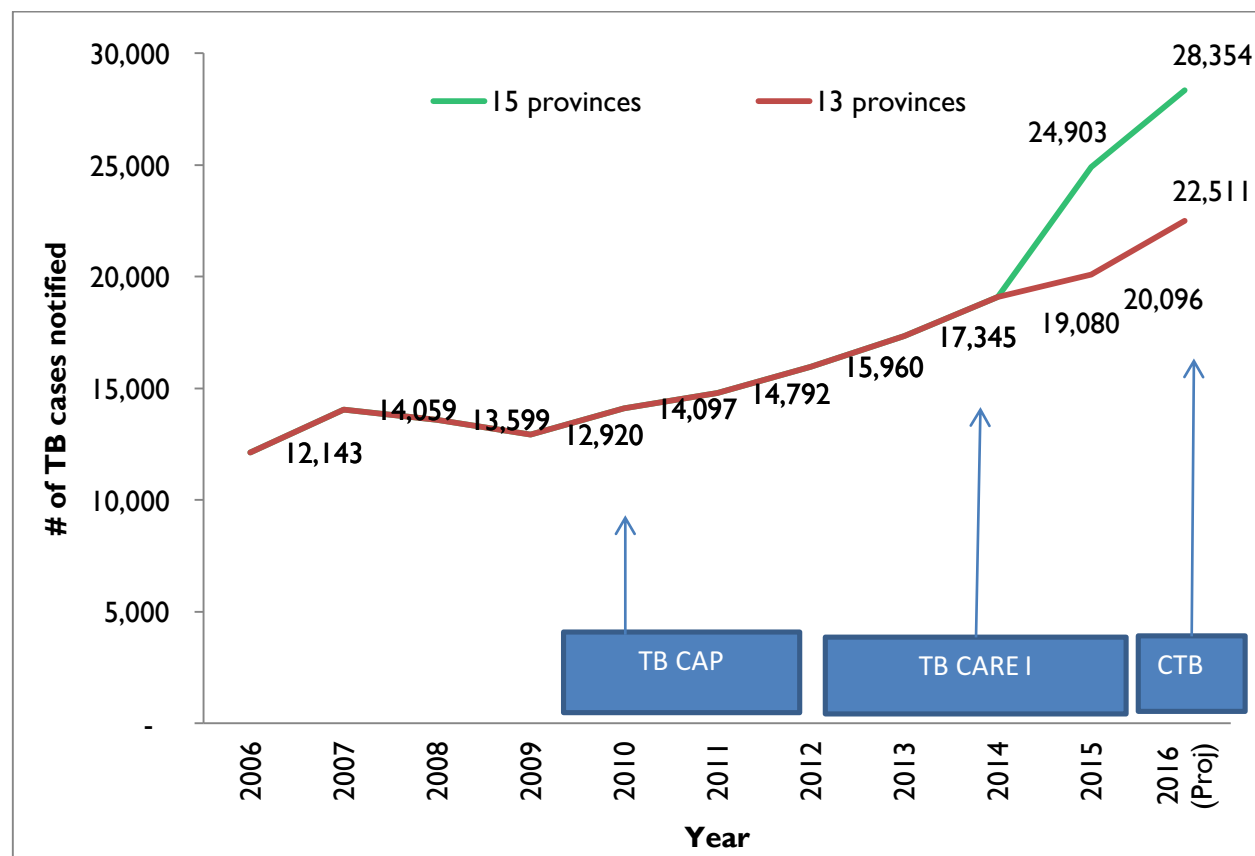
Figure 2: Trend of TB case notification in Afghanistan 2001-2016



The contribution of USAID TB projects in this achievement was significant. For example, in 2016, there will be a projected 13% increase in TB case notification in all USAID supported provinces.

In USAID funded TB projects', case notification for all forms of TB cases increased by 74% in 13 provinces, from 12,920 (2009) to 22,511 (2016) and in five urban DOTS provinces case notification improved by 13% between 2015 compared to 2016. Figure 3 shows the contribution of USAID funded projects in achieving strategic objective of NTP.

Figure 3: Contribution of USAID funded TB project in case notification in Afghanistan



Contact investigation

During Year 2, CTB assisted the NTP to expand active case finding and promote contact investigation in five provinces (Kabul, Herat, Kandahar, Nangrhar and Balkh). In total, there were 11,469 index TB cases, pulmonary bacteriologically confirmed TB case in all 5 provinces. CTB assisted the NTP to evaluate 4,228 (37%) of all index TB cases during APA2. Contact investigation improved by 60% from 25,318 individuals in 2014 to 42,842 in 2016. There were also improvements in presumptive TB patient identification and examination among household contacts to index cases. For example, in 2016, 6,564 of the contacts were identified as presumptive to TB and their sputum was collected and examined for acid fast bacilli (AFB). Of those tested, 354 were diagnosed as bacteriologically confirmed and 931 as all forms of TB cases. Moreover, there was a 52% increase in the identification of children who were in contact with index TB cases and an increase in the number of children under the age of 5 put on Isoniazid preventive therapy (IPT). For instance, during October 2015-September 2016, 6,380 children were put on IPT while only 2,801 children were put on IPT in 2014 (See Table 3). CTB assisted the NTP to train health care staffs to implement contact investigation in five provinces. They visited

the houses of index TB cases, screened all household contacts for the signs and symptoms of TB, collect sputum of presumptive TB patients and started children under the age of 5 on IPT. The TB prevalence of all forms TB among contacts was 12 times more than the estimated TB rate in the general population. This is the reason why contact investigation is a key intervention of the CTB project.

Table 3: Trend of contact investigation performances in 15 provinces of Afghanistan, 2014-2016

Variable	2014, # (%)	2015 # (%)	2016 (Projected), # (%)	Difference # (%) (2014-2016)
Presumptive TB patients identified/examined	119,548	122,262	202,573	83,025 (69%)
All forms of TB cases notified	22,944 (19%)	24,903 (20%)	28,354 (14%)	5,410 (26%)
Bacteriologically confirmed TB cases notified	10,328 (9%)	11,310 (9%)	11,469 (5.7%)	1,141 (11%)
Household contact (HHC) to TB patients	25,318 (41%)	27,949 (41%)	42,842 (62%)	17,524 (60%)
Presumptive TB patients among HHC	3,727 (15%)	5,324 (19%)	6,564 (15%)	2,837 (76%)
All forms of TB cases diagnosed among HHC	369 (10%)	491 (9%)	931 (14%)	562 (152%)
Bacteriologically confirmed TB cases notified	223 (6%)	251 (5%)	354 (5%)	131 (59%)
TB all forms case notification in 100,000 population	1,600	1,750	2,173	N/A
Children under that age of five of HHC	6,203 (24%)	6,520 (23%)	9,425 (22%)	3,222 (52%)
Children under the age of five put on IPT	4,136 (67%)	4,678 (72%)	8,185 (87%)	4,049 (-1%)
Children under the age of five completed IPT	2,801	3,217	6,380	3,579 (127%)
Treatment success rate	90% (2013)	90% (2014)	90% (2015)	n/a

Urban DOTS Program in Kabul, Mazar-I-Sharif, Herat, Kandahar and Jalalabad

Under patient-centered care and treatment, CTB Afghanistan supports the Urban DOTS program in the densely populated cities of Kabul, Mazar-I-Sharif, Herat, Kandahar and Jalalabad. CTB provides patient-centered care and treatment to five prisons in above mention cities and one prison in the Bagram district of Parwan province.

In total, 285 public and private HFs (142 public and 143 private) provide health services in five Urban DOTS cities. One hundred and fifty out of 285 HFs are covered by Urban DOTS and provide TB services (94 public and 56 private HFs), (53% of HFs covered by Urban DOTS in the cities mentioned above) (See Table 4).

Under the Urban DOTS approach, TB services were expanded to various HFs including both public and private and non-MOPH facilities. The following activities were conducted:

- Training of health care staff
- Regular supply of anti-TB drugs and laboratory consumables
- Supply of standard recording and reporting forms and formats
- Regular supervision and monitoring
- Redesigning of HFs to provide safe work environment for healthcare staff
- Advocacy workshops for TB
- Awareness raising events for students
- Contact tracing and investigations
- Quarterly review workshops

This approach enabled the public and private HFs to be institutionally developed and to provide TB services more sustainably, through their own funding and through non-monetary assistance from the MOPH/NTP (i.e. the supply of reagents and anti-TB drugs).

The lack of new technology and digital X-ray machines in the pediatric departments of provincial hospitals has prevented the NTP from focusing on TB management among children without sputum, pulmonary negative and presumptive TB cases and extra pulmonary TB patients.

In Afghanistan, 45% of the population is less than 15 years old, and 15% of all identified TB cases are among children. Most TB cases among children are missed in the five big cities (Kabul, Mazar, Herat, Kandahar and Jalalabad) because of lack of proper diagnostic tools in pediatric hospitals.

Chest X-ray is a critical tool for diagnosing TB among children who are unable to expectorate.

To overcome these challenges, CTB and the NTP agreed to procure and install digital X-ray machines in the Urban DOTS cities of Kabul, Herat, Kandahar and Mazar-i-Sharif during years one and two of the project and the outcome results of these installations will be available in APA3.



Image 1. X-ray technician taking an X-ray of a child at Herat Pediatric Hospital

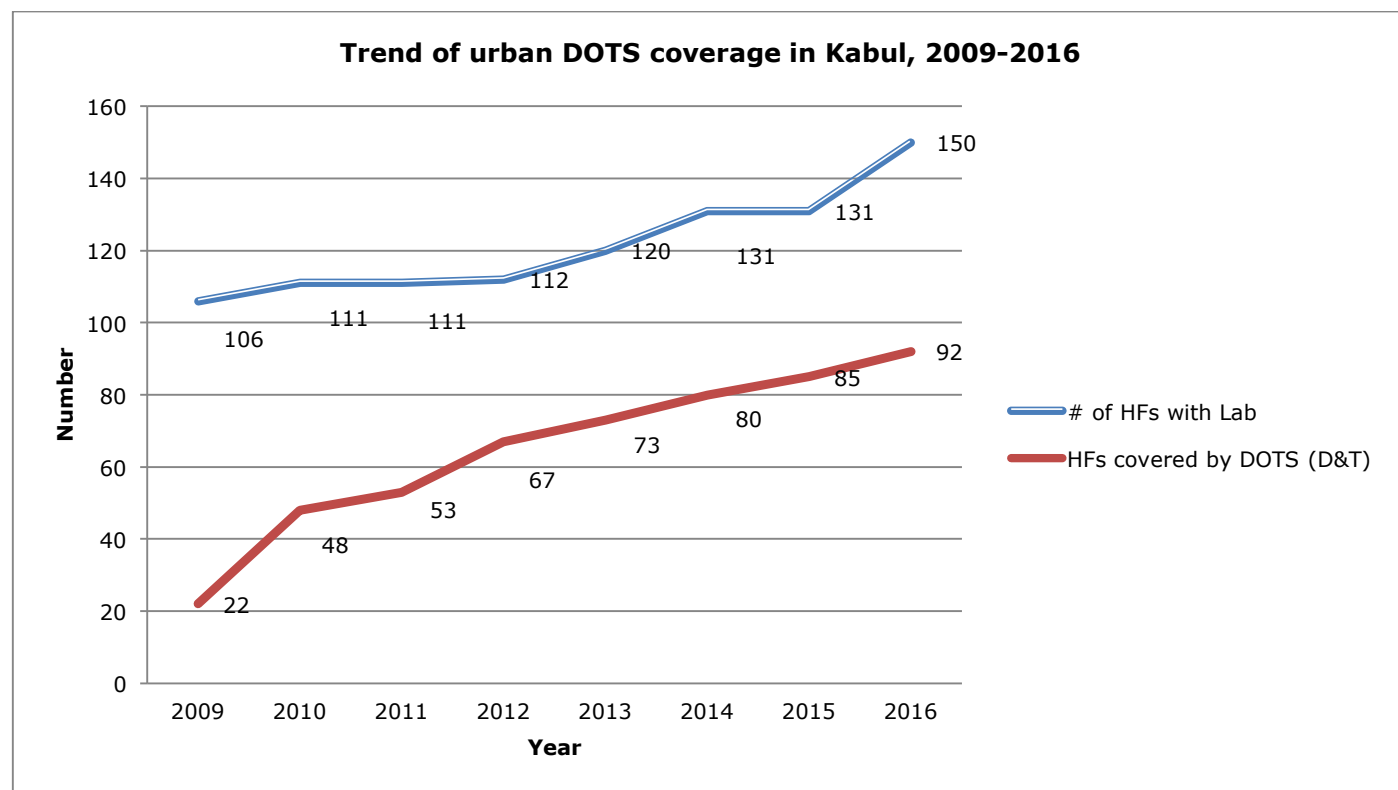
In Year 2, CTB also developed the TB – Diabetes SOPs. The implementation process of the SOPs will take place in Year 3 of the project. The implementation results will be available at the end of Year 3. CTB will assist the NTP to train health care staff in all five cities that are covered by urban DOTS and will monitor the implementation of these new SOPs through routine visits and a review of performance during quarterly review workshops.

Challenge TB supports the full package of Urban DOTS implementation in the cities mentioned above to enhance TB case detection/notification country-wide and implement the multi-sectorial Urban DOTS approaches to close the gap of low case detection in the country.

Urban DOTS in Kabul:

Currently, 92 facilities are covered by the urban DOTS program in Kabul. This is an 8% increase compared to the number of facilities in 2015 (See Figure 4 and Table 4).

Figure 4: Trend of urban DOTS coverage in Kabul, 2009-2016



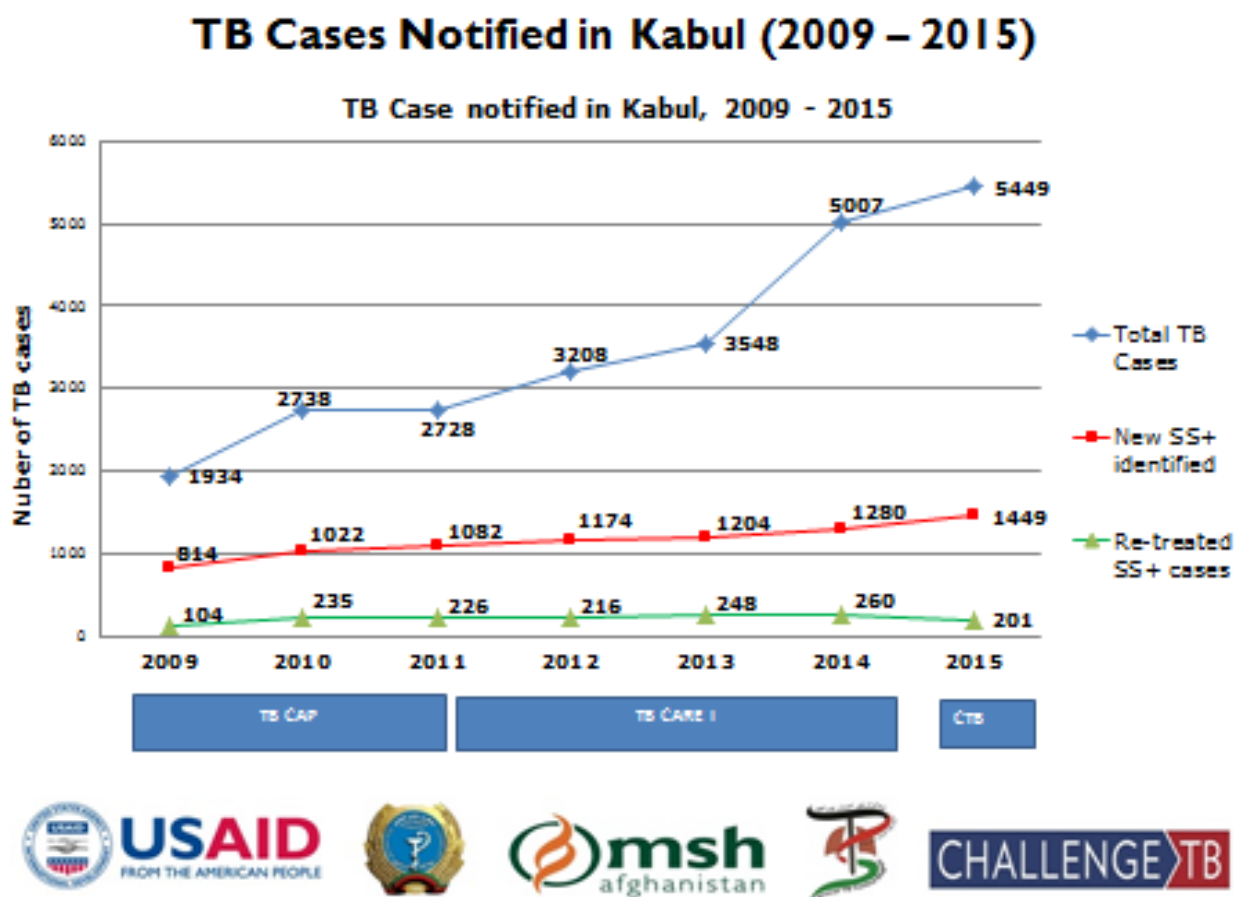
In Kabul alone, CTB and NTP efforts led to a 3% increase in TB case notification in 2016 compared to 2015 — i.e., case notification increased from 5,351 TB cases during 2015, to 5,501 TB cases in 2016 (See Figure 5 and Table 4).

Table 4: Trend of TB case notification in Kabul, 2015-2016

Indicators/ Year	2009	2010	2011	2012	2013	2014	2015	2016
No. of existing HFs with laboratory services	106	111	111	112	120	131	132	150
No. of HFs covered by DOTS	22	48	53	68	73	80	85	92
No. of TB suspects identified/examined	2,856	10,150	11,900	13,644	14,181	17,061	17,525	20,342
No. of all TB cases notified	1,934	2,738	2,728	3,215	3,548	5,007	5,449	5,501
No. of new sputum smear positive cases notified	814 635	1,022	1,082	1,174	1,204	1,280	1,449	1,569

Conversion rate of sputum smear positive cases	47%	65%	68%	70%	72%	73%	73%	76%
Treatment success rate of new sputum smear cases	49%	62 %	68%	70%	72%	73%	77%	NA
Transfer out rate of new sputum smear positive cases	46%	26 %	16%	18%	18%	17%	13%	NA

Figure 5: TB Cases Notified in Kabul (2009-2015)



Urban DOTS implementation resulted in improved TB treatment outcomes in Kabul. Notably, the TSR in Kabul is 77%, and one of the continued challenges for Kabul urban DOTS is the high transfer out rate (13%) compared to the national rate of 5% (See Figure 4). CTB has strived to address this

challenge by creating strategies to minimize transferring, and to improve the cure and success rates.

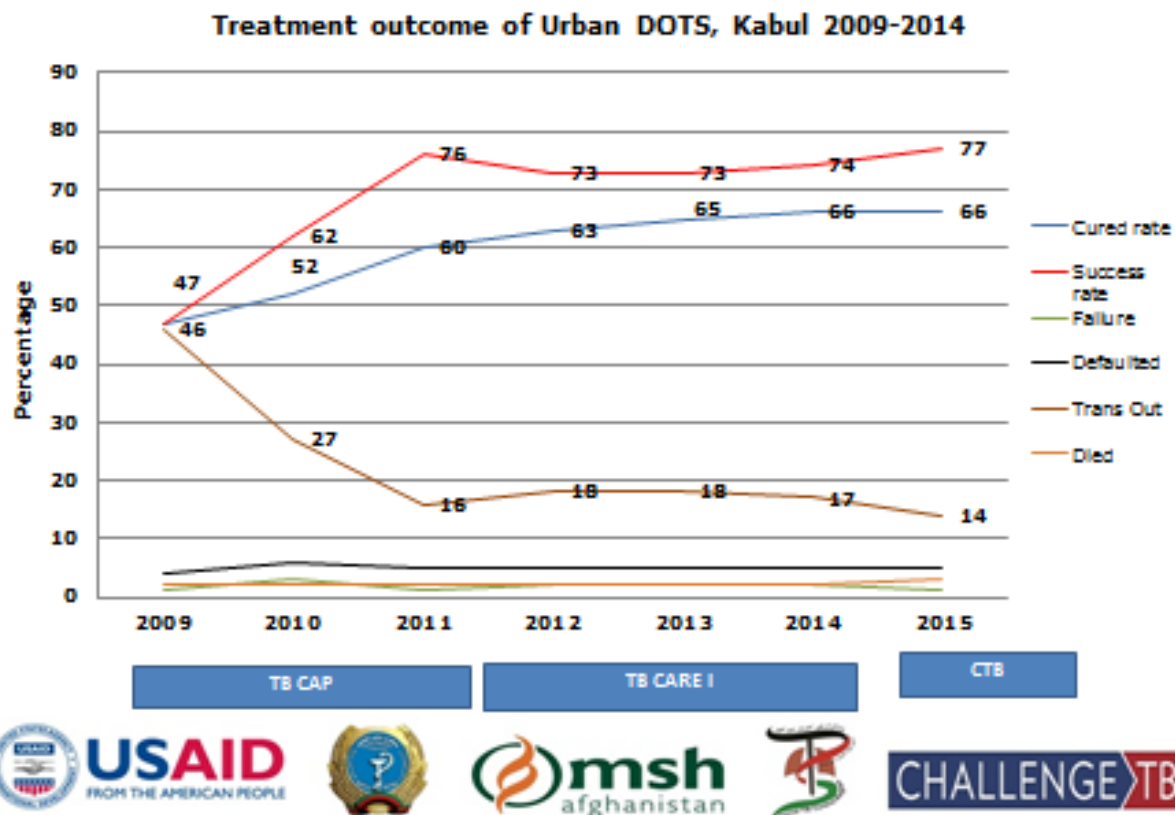
Some of the strategies include: (1) engaging in the active follow-up of TB patients who initiated their treatment in Kabul and continue treatment in their local provinces; and (2) strengthening the referral system between HFs to report the treatment outcomes of patients who transfer to other locations. In addition, health care staff were motivated to track the TB patients by calling the refer-in and refer-out facilities and the patients to ensure the completion of follow-up examinations and TSR (See Figure 6).



Image 2. TB awareness event for medical students of Ghalib Private University, Kabul

Figure 6: Treatment outcome of urban DOTS in Kabul, 2014-2015

Treatment Outcome of TB SS+ Cases, 2009 – 2015 (Kabul)

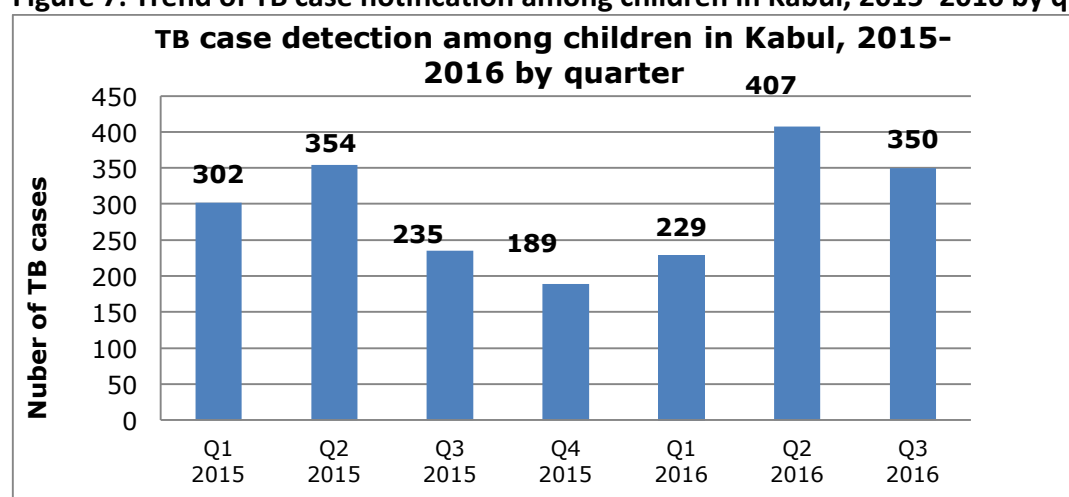


There are two prisons covered by urban DOTS, Pul-i-Charkhi-Kabul and Bagram. Currently, both prisons provide a full package of TB services. In total, there were 163 cases of all forms of TB identified during year 2. The success rate of new bacteriologically confirmed TB patients in the prisons is higher than the national level (93%) and the national TSR at the prisons was 89%.

During Year 2 of the project, the Kabul Urban DOTS program expanded active contact screening to other HFs with TB services. A total of 8,165 household members were screened for TB; 981 of the household members were examined for AFB, 80 TB cases were detected among contacts, and IPT was initiated for 1,077 children under the age of 5 (see figure 7).

During year 2, CTB focused on the management of TB in children under the Kabul Urban DOTS program and identified 1,176 all from of TB case in children aged 0-14 years (21% of all TB cases in Kabul).

Figure 7: Trend of TB case notification among children in Kabul, 2015–2016 by quarter



Urban DOTS implementation in Kandahar, Mazar-i-Sharif, Herat, and Jalalabad cities

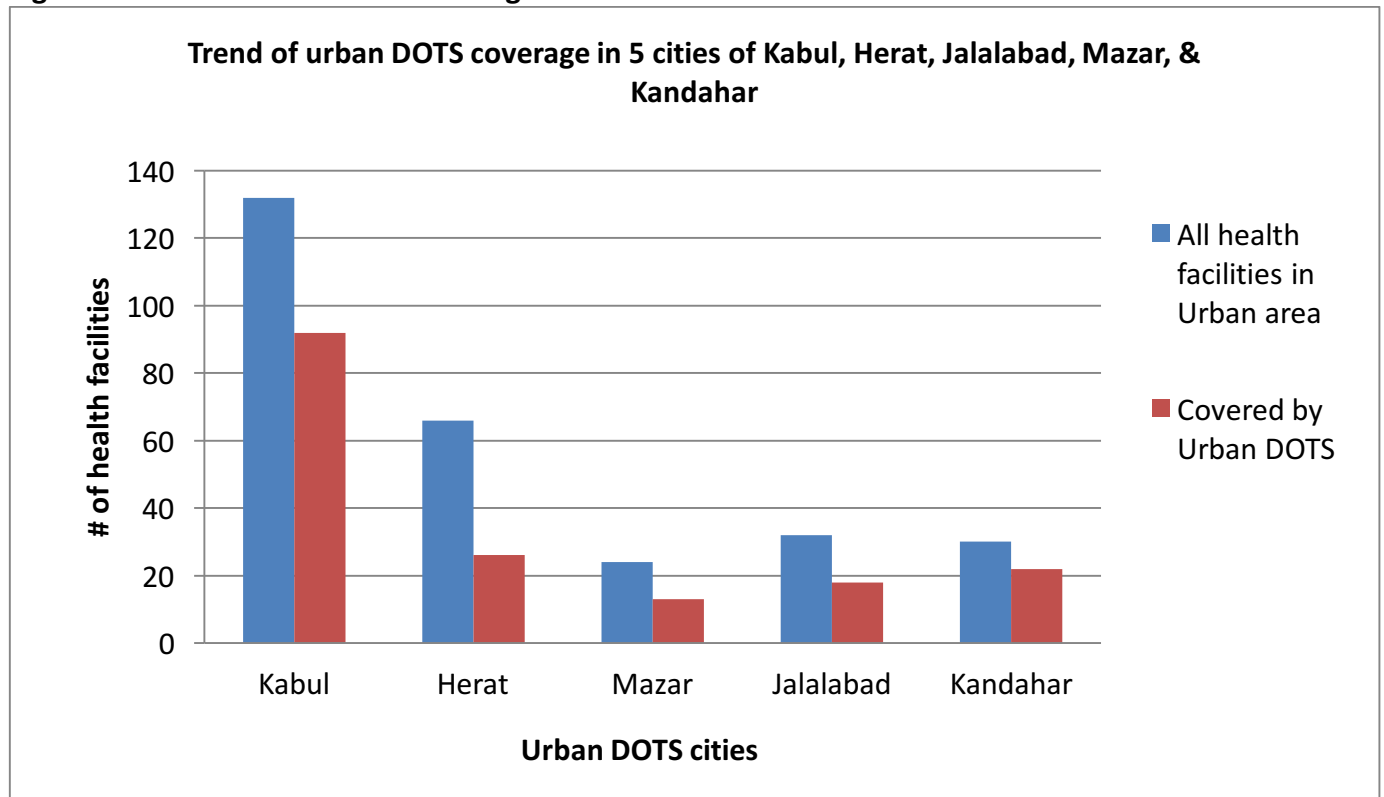
DOTS coverage:

During year two of the project, Urban DOTS was expanded to four new cities of Kandahar, Mazar-i-Sharif, Herat and Jalalabad. During year 2 of the project, 25 more HFs with lab services were engaged in Urban DOTS program in the 4 cities mentioned above, and the number of public and private HFs offering TB services (diagnostic and treatment facilities) increased from 52 in 2015 to 77 in the third quarter of 2016 (cumulative data) (See Table 5 and Figure 8).

Table 5: HF coverage in four cities, 2015–2016

Name of province	Total HFs	# of public HFs	# of public HFs covered by Urban DOTS	# of private HFs	# of private HFs covered by Urban DOTS
Herat	66	26	13 (50%)	40	11(27%)
Mazar	25	8	4 (50%)	17	9 (53%)
Jalalabad	32	19	6(32%)	13	12(92%)
Kandahar	30	17	13 (76%)	13	9(69%)
Total	153	70	36 (51%)	83	41 (49%)

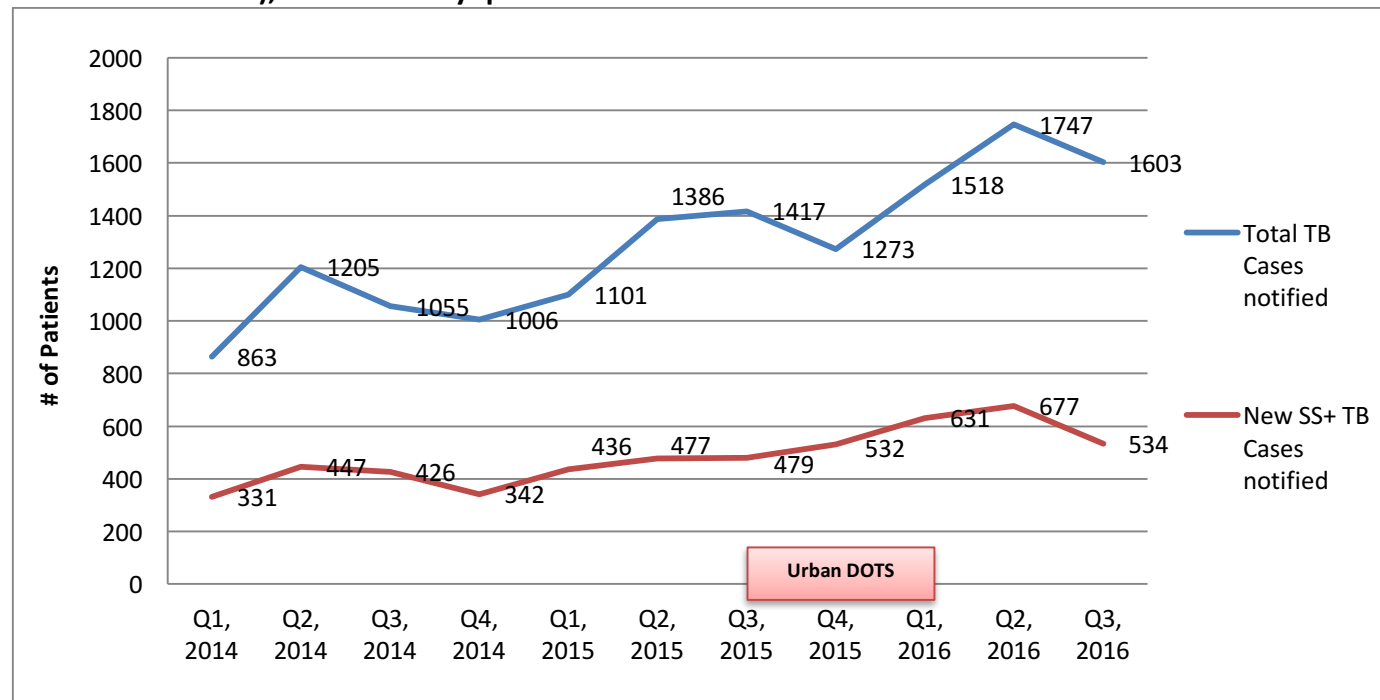
Figure 8: Trend of urban DOTS coverage in five urban DOTS cities



Case notification

As a result of CTB efforts, TB case detection dramatically improved in the second year of the project. The number of all forms of diagnosed TB cases reached 6,141 and new bacteriologically confirmed TB cases reached 2,374 (See Figure 9).

Figure 9: Trend of TB case notification in four urban DOTS cities (Kandahar, Herat, Jalalabad, and Mazar-i-Sharif), 2015–2016 by quarter



During Year 2 of the project, Urban DOTS expanded active contact screening to HFs in four new Urban DOTS cities. A total of 15,123 household members were screened for TB; 2,979 were examined for AFB, 408 TB cases were detected among contacts, and IPT was initiated for 2,625 children under the age of 5.

CTB helped the NTP conduct training for 487 health care workers (medical doctors, nurses and lab technicians), provided anti TB drugs supplies and reagents for diagnosis, and improved the recording and reporting system.

During Year 2, CTB focused on the management of TB in children in 4 cities and identified 682 all from of TB case in children aged 0-14 years (11% of cases in four cities).

Contact investigation and TB in children:

CTB sustained efforts to promote contact investigation, and thus helped the NTP and BPHS implementing organizations and frontline health care staffs conduct active contact investigations in the five provinces of Kabul, Herat, Kandahar, Jalalabad, and Balkh.

The new active contact screening strategy resulted in improved access to TB services, especially for women and children under the age of 5. CTB monitored the implementation of this approach through joint supervision and monitoring visits to HFs and random checks of 10% of index TB cases. During year 2 of the project period, they investigated the houses of the 4,273 index

bacteriologically confirmed TB cases. As a result, 23,288 individuals in close contact to the index TB cases were registered and verbally screened for signs and symptoms for TB; among them, 3,897 (17%) households had presumptive TB cases that all tested for acid fast bacilli (See Table 5).

Consequently, health care staff diagnosed 194 (5%) households as having bacteriologically confirmed TB cases and 488 all form of TB cases were identified (12.5%). In addition, in 5 provinces, 3,702 children under the age of 5, after active TB disease was ruled out, were in contact with index TB cases and were put on INH preventive therapy.

During Year 2 of the project, Urban DOTS focused on strengthening TB diagnosis among children, which resulted in 1,857 pediatric TB all forms patients (16% of all form TB cases notified) in five Urban DOTS cities.



Image 3. SOP training for frontline healthcare staff in Kabul

Addressing TB among prisoners

There are 4 prisons covered by Urban DOTS in Herat, Kandahar, Mazar-i-Sharif and Jalalabad cities. Currently, these four prisons provide a full package of TB services. In total, there were 34 all forms of TB cases identified during APA2. The treatment outcomes of these TB cases will be available at the end of APA3.

Key Results

Table 6: Outcomes of Urban DOTS implementation in five cities (October 2015- September 2016)

#	Outcome Indicators	Indicator Definition	Baseline (Year/ timeframe)	Target	Result
				Y2	Y2
1	I3.1.15. #/% of TB cases (all forms) diagnosed via Urban DOTS or other urban TB approaches	Number of all form TB cases notified in Urban DOTS intervention areas	5,894	9,500 (25%)	11,458 (29%)
2	I3.2.1. Treatment success rate among bacteriologically-confirmed TB cases in Kabul	Number of bacteriologically confirmed TB patients successfully cured and completed the treatment in Kabul	72%	74%	77%
3	I3.2.1. Treatment success rate among bacteriologically-confirmed TB cases in Mazar, Herat, Kandahar and Jalalabad	Number of bacteriologically confirmed TB patients successfully cured and completed the treatment in in Herat, Kandahar and Jalalabad	88%	90%	90%
4	I3.1.5. #/% HFs implementing intensified case finding (i.e. using SOPs) in Kabul, Mazar, Herat, Kandahar and Jalalabad cities	Number of public and private HFs implementing TB services in Kabul, Herat, Kandahar, Mazar and Jalalabad cities	111	160 (56%)	169 (59%)
5	I3.1.3. Case notification rate in Kabul	Number of all form TB cases notified in Kabul from all estimated TB cases based on population	53%	60%	64%
6	I3.1.8. % of TB cases (all forms) diagnosed among children (0-14) in 5 cities	Number of all form TB cases notified among children (0-14 Years old) in 5 cities	593	1,176 (12%)	1,858 (16%)
7	I3.2.2. Treatment success rate for pediatric TB patients in Kabul	Percentage of children with TB, successfully completed the treatment in Kabul	58%	62%	65%

8	I3.1.17 [Number of household contacts of SS+ (Index Case) screened for TB in 5 cities]	Number of household of SS+ TB cases should be screen for TB	1,018	1,200	3,897
9	I3.1.x [Number of children under 5 years of age put on IPT in Kabul]	Number of children put on IPT	640	800	1,077
10	I3.2.15. #/% of diabetic centers engaged in Urban DOTS program in Kabul	Number of Diabetic centers providing TB services	2	2	2 (50%)
11	I3.2.15. #/% of prisons providing DOTS in five cities	Number of prisons providing TB activities in five cities	2	6	6 (86%)
	I3.2.20. #/% of HFs providing CB-DOTS services	Numerator: Number of HFs providing CB-DOTS services Denominator: Total number of HFs in the area	450 (2014)	500	600 (41%)
	I3.2.22. #/% of TB patients followed by community-based workers/volunteers during at least the intensive phase of treatment	Numerator: Number of TB patients registered in a specified period that were followed by CB workers/volunteers during at least the intensive phase of treatment Denominator: Total number of TB patients registered in the same period in the area	18% (1,452) from CB-DOTS approach (2015)	20% (1,613) from CB-DOTS approach	1,765 (25%)

Objective 2. Prevention

Sub-objective 5. Infection control

From October 2015 until September 2016, 330 health staff (100 females and 230 males) were trained on TBIC control strategies and standards. The structural design and engineering approaches of 60 additional HFs were assessed to reduce airborne infections (primarily TB transmission) within the HF settings. In order to reduce airborne infections, a re-design and engineering plan was developed and shared with BPHS implementing NGOs and the NTP for implementation. Of the 60 HFs, 30 were re-designed. Furthermore the structural design and engineering approaches of 45 laboratories (4 regional and one national) laboratory were assessed. A plan to improve the design and engineering approaches has been created and implemented. Moreover, the initial plans/design phase of four MDR-TB wards being built by the Global Fund (GF), have been technically reviewed with the NTP and GF to consider airborne infection control precautions. To strengthen the integration of the TBIC plan into general infection prevention plan and track progress, 60 additional HF-level TBIC committees were established and 400 monthly meetings were conducted.



Image 4. TBIC committee meeting in Nangarhar province

To reduce laboratory turnaround time and improve case finding, 1,200 laboratory IEC posters were printed and distributed to 704 laboratories in 34 provinces. To evaluate the process and outcome, TBIC indicators were designed in the form of A-4 size posters and ultimately 1,200 posters were distributed nationwide. To focus on the outcome and demonstrate results to the NTP and donor, four TBIC abstracts have been developed and submitted to the 47th Union World Conference on Lung Health that will take place in Liverpool in October 2016. All four abstracts had been accepted by the conference (see Annex III).

TBIC results:

CTB's focus on the implementation and follow-up of TBIC process indicators led to reducing the time from suspect TB patients' identification to departure time. CTB's focus on the

implementation and follow up of TBIC has also led to reduced diagnosis and treatment initiation time. For further detail please refer to the table below.

Table 7: Description of time interval TB patients spend in intervention and control facilities, 2015

Indicators	Intervention HFs	Control HFs
Sample size	108	72
TB suspect detected time	35.1 minutes	62 minutes
Suspect departed time after first sample collection	75.7 minutes	182 minutes
Sputum Samples collected (at least three from detected suspect)	32 hours	65 hours
Required time by laboratory to process to process sputum for microscopy	48.2 minutes	69.6 minutes
Required time by smear microscopy and record and reporting	30 minutes	56 minutes
Time to report result to patient by DOTs clinician	40 hours	69.5 hours
Time from diagnosis to initiation of treatment	40 hours	72.3 hours

The strategy has led to a steady increase in the case detection trend through an administrative triaging system in 15 CTB supported provinces.

Table 8: Contribution of TB infection control facilities in Afghanistan, 2015

Variable/Indicators	2014	2015	% Changed (2014-2015)
No. of HFs covered by TB IC	103 (29%)	103 (29%)	N/A
No. of TB suspect cases identified	61,259	66,482	109%
No. of TB suspect Tested	59,662	64,277	108%
No. Of new sputum smear positive cases notified	4,376 (7% positivity rate)	5,245 (8% positivity rate)	120%

During the second year of the project, CTB assisted NTP to conduct an assessment to evaluate the outcomes of TBIC implementation in HFs with and without TB infection control implementation in 15 provinces covered by the CTB project. The assessment team from CTB and the NTP measured seven standards; the TB IC plan, ventilated sputum collection area, Health facility redesigning to maximize ventilation and patient flow, coughing triage, patient separation, cough etiquette and face mask use by patients. The assessment revealed that the intervention facilities met 89% of these standards, however only 2.5% of the health standards were met at control HFs. For example, among TBIC supported HFs, the TB IC plan existed at 100% of the HFs, well ventilated sputum collection areas exist at 100% of the HFs, coughing triage existed at 75%

of the HFs, patient separation existed at 90% of the HFs, cough etiquette existed at 77% of HFs, the use of face masks existed at 76% of the HFs and the structural design improved at 95% of the HFs (See Table 7).

Table 9: Contribution of TB infection control in Afghanistan

Variables	Facilities with TBIC Intervention	Facilities without TBIC Interventions
Sample size	90	45
Existing TB IC plan	100%	0%
Existing ventilated sputum collection area	100%	5%
Health facility redesigning to maximize ventilation and implement patient flow	95%	10%
Cough triage	75%	6%
Patient separation	90%	2%
Cough etiquette /Respiratory hygiene	77%	5%
Face Mask used by patients	76%	7%

Table 10: Outcomes of TB infection control implementation

#	Outcome Indicators	Indicator Definition	Baseline (Year/ timeframe)	Target	Result
				Y2	Y2
1	I5.1.1. Status of health facility TB IC (0=no TB IC guidelines & no organized TB IC activities; 1=national, WHO-aligned TB IC guidelines disseminated; 2=TB IC implemented in select sites; 3=TB IC implemented nationally and/or nat. cert. prog. implemented)	0=no TB IC guidelines & no organized TB IC activities; 1=national, WHO-aligned TB IC guidelines disseminated; 2=TB IC implemented in select sites; 3=TB IC implemented nationally	2	3	2
2	I5.1.2. #/% of HFs implementing TB IC measures with Challenge TB support	Nominator: # of HFs implementing TB infection control measures	140 (39%)	220 (61%)	220 (61%)

	(stratified by TB and PMDT services)	Denominator: Total number of HFs in all 15 provinces			
3	I5.1.5. #/% of high-risk sites in which TB IC is implemented with Challenge TB support (stratified by applicable sites: PMDT, HIV, mines, prisons, etc.)	Number of high risk sites covered by TBIC measure application	1/100%	5/100%	5/100%
4	I5.1.7. Community-based TB IC has been incorporated into national guidance	The TBIC is part of CHWs' training manual for DOTS	No	Yes	Yes
5	I5.2.2. #/% of HCWs screened (frequency of measurement based on policy)	TB surveillance among health care workers established and number of HCWs screened for signs and symptoms of TB	240 (2011)	600	0 This activity is planned for APA3
6	I5.2.3. #/% of HCWs diagnosed with TB annually	Numerator: Amount of private sector cost share covering CTB project activity during most recent fiscal year Denominator: Total CTB project activity budget plus private sector cost share amount during the year of assessment.	7 (2011)	15	

Objective 3. Strengthened TB Platforms

Sub-objective 7. Political commitment and leadership

CTB assisted the NTP to take the lead in the implementation of the TB program in Afghanistan. For instance, NTP and MOPH took lead in implementing TBIS. CTB also developed the NTP core function tool and presented it to the NTP. This tool will be piloted during APA3.

The private sector also aligned with CTB to share project costs. It is estimated that the private sector contributed USD 163,846 (4.6% of the total CTB year 2 budget) (See Table 9). In addition, CTB assisted the NTP to revise the national TB guidelines and develop SOPs for TB and diabetes, SOPs for extrapulmonary TB and develop a roadmap for TB and malnutrition.

Moreover, CTB contributed to the development and revision of the national strategic plan (NSP) for 2017-2020. CTB is an active member of the NSP development committee and assisted the NTP with a situation analysis for the TB program as well with the M&E, surveillance and operation research, urban DOTS and CB-DOTS sections of the NSP. The NSP narrative is in preliminary draft state and CTB will assist the NTP for budgeting as well. CTB also assisted the NTP to conduct World TB day celebrations in 15 provinces and Kabul. CTB assisted the NTP by advocating for TB at donor, policy, implementation, and community levels in order to increase political commitment to directly observed and short-course (DOTS) expansion and implementation. The largest advocacy event was executed in Kabul and was attended by His Excellency the Minister of Public Health, USAID Director of Health and Nutrition, other donors, partners, and the NTP. The World TB Day celebration was also extended to the community and was celebrated in 368 health facilities (HFs) in 15 provinces. Moreover, CTB helped the NTP to develop, print, and distribute 1,100 banners, 3,000 copies factsheets, 35 posters, 500 copies of the NTP annual report, and 500 file folders. Individuals from communities, TB patients, associations and *shuras* (local councils), community health workers (CHWs), prominent community leaders, community health *shuras*, religious leaders, government departments, frontline health care workers (HCWs), and civil society members attended these events, with TB messages directly reaching 18,400 people. Assuming that each one of these individuals will convey the TB messages to at least three individuals in the community, ultimately 55,200 people were indirectly reached.



Image 5. USAID Mission Director delivering a speech during the World TB Day celebration at the MOPH conference hall, March 29, 2016

1.1.2 Execution of the TB Results Conference

Table 11: Comparison of TB infection control Afghanistan

#	Outcome Indicators	Indicator Definition	Baseline (Year/ timeframe)	Target	Result
				Y2	Y2
1	7.2.1. % of NTP budget financed by domestic resources	Numerator: The amount of NTP expenditures from domestic sources during reporting period Denominator: Total NTP expenditures in the period	8% government spending in TB (global TB report 2014)	9%	8% (WHO global TB report 2015)
2	7.2.3. % of activity budget covered by private sector cost share, by specific activity	Indicator Value: Percent Numerator: Amount of private sector cost share covering CTB project activity during most recent fiscal year Denominator: Total CTB project activity budget plus private sector cost share amount during the year of assessment.	N/A	1 % of total CTB project	USD 163,846 (4.6%)
3	7.3.1. NTP leadership and management competency score (TBD)		N/A	30% improve ment from baseline	This activity was not conducted during APA2

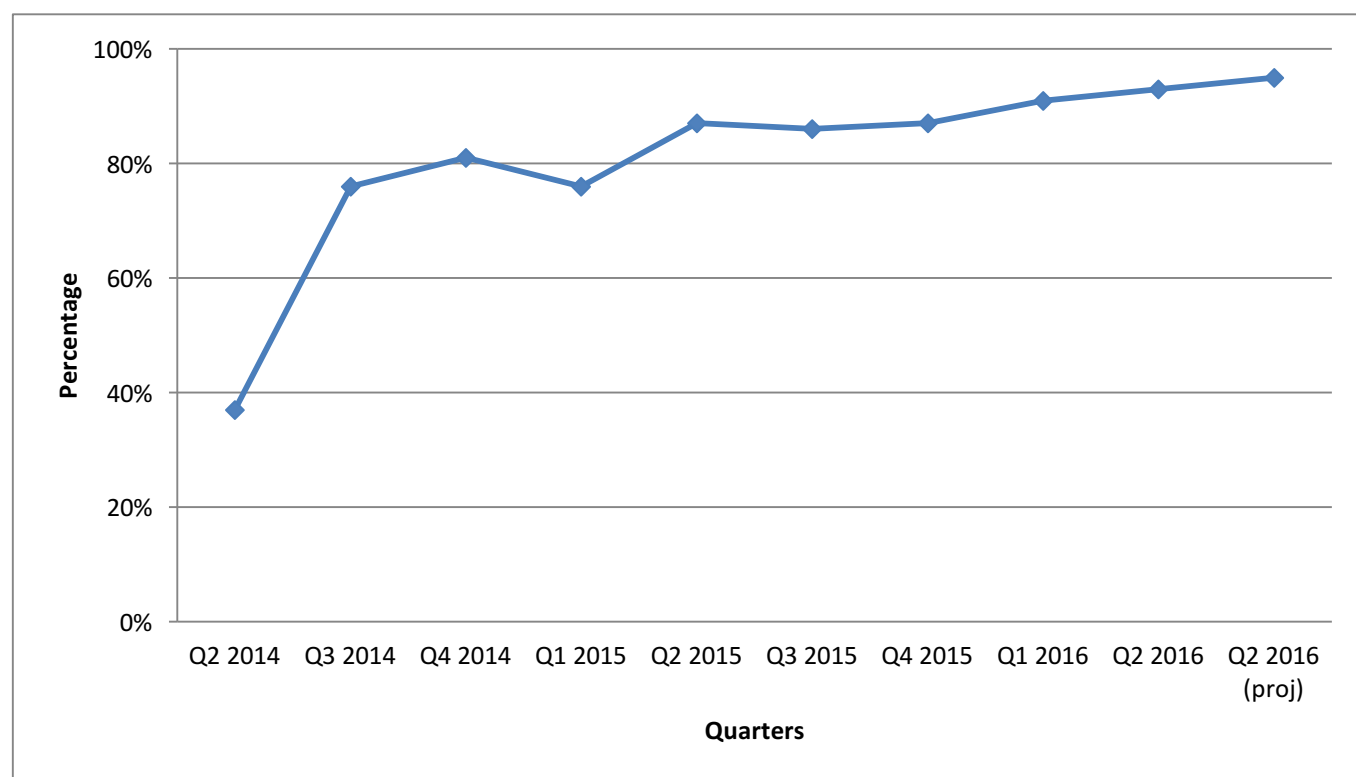
Sub-objective 10. Quality data, surveillance and M&E

The CTB project assisted the NTP to promote electronic reporting during APA2 (October 2015-September 2016). The CTB project assisted the NTP and HMIS unit of the MOPH to train 140 staff (xx females/ xx males) including HMIS officers from provincial public health offices and NGOs, NTP staff and provincial TB coordinators from all 34 provinces on the TB information systems database. During these 3-4 day visits, the staffs were trained on data cleaning and data use and utilization of electronic reporting. In addition, CTB helped the NTP and PHOs to monitor the implementation of an electronic report approach. Additionally, the TBIS was further integrated into the national HMIS database and the implementation leadership was shifted to the MOPH, NTP and implementation was shifted to BPHS implementing organizations.

The CTB project assisted the NTP to develop an electronic data reporting system (TBIS) that was introduced to stakeholders to promote aggregated electronic reporting through a partnership with CTB, the NTP, NGOs, HMIS unit of MOPH and Public Health Offices (PHOs). Moreover, the

NTP and MoPH HMIS Unit provided technical assistance, feedback, and coordinated TBIS implementation with partners. High performing provinces were recognized with appreciation letters. This led to improved quality of TB data e.g. completeness and timeliness of TB data increased from 36.4% during the first quarter of 2014 to 87% by the third quarter of 2015 and it is expected to reach to 95% at the end of September 2016 (See Figure 10). Additionally, TB surveillance sensitivity for presumptive TB case notification improved from 51% (2013) to 70% (2015) ($p < 0.001$, OR 2.2). In summary, the TB surveillance strengthening initiatives through developing partnerships resulted in improved completeness and timeliness of TB data and sensitivity of TB surveillance.

Figure 10: Trend of TB data electronic reporting 2014-2016



CTB assisted the NTP to revise the national NTP guidelines and translation to local languages. The NTP will be implementing the revised recording and reporting forms in 2017. CTB will assist the NTP and the HMIS unit of MOPH to revise the electronic reporting and recording forms.

Execution of TB Results Conference

CTB Afghanistan assisted the NTP to conduct the first ever national TB Results Conference aimed at promoting evidence-based decision-making and enhancing research within the TB program and health sector at large; informing policy makers, donors, and partners with updated knowledge on TB; and sharing new knowledge (research, assessments, and results) with the wider academic and public health community in Afghanistan.

In total, there were 118 participants (9 female, 109 male) at the conference and 30 posters and 9 presentations were delivered. His Excellency, the Minister of Public Health appreciated this initiative and all TB partners for their valuable achievements and good coordination and collaboration. He noted that, “other health programs should copy this model and present their results to audiences in such a conference.” Furthermore, Ms. Jo Jean Elenes, Acting Office Director, Office of Health and Nutrition, USAID Afghanistan, delivered her speech and offered her congratulations for “the first ever of such [a] conference.”



Image 5. TB Results Conference, Suhaila Sediq Conference Hall, Ministry of Public Health, March 27, 2016

Table 12: Comparisons of project target and performances in Afghanistan

#	Outcome Indicators	Indicator Definition	Baseline (Year/ timefram e)	Target	Result
				Y2	Y2
	10.1.2. #/% of eligible HFs reporting TB data in real time or at least quarterly via the ERR	Numerator: Number of HFs reporting TB data in real time or at least quarterly via the ERR Denominator: Total number of HFs with TB services	555/79%	680/100%	705/95%
	10.1.4. Status of electronic recording and reporting system	Indicator value: Score based on below: 0=R&R system is entirely paper-based;1=electronic reporting to	1 (2015)	1	1

		national level, but not patient/case-based or real time; 2= patient/case-based ERR system implemented in pilot or select sites (TB or MDR-TB); 3=a patient/case-based, real-time ERR system functions at national and subnational levels for both TB and MDR-TB; 4= a patient/case-based, real-time ERR system is functional at national and subnational levels for both TB and MDR-TB completely and meets WHO standard for TB surveillance data quality -			
	10.1.9. AFGHANISTAN SPECIFIC: #/% of HFs using new TB recording and reporting forms		0 (2015)	680/100%	(705/740) 95%
	10.2.1. Standards and benchmarks to certify surveillance systems and vital registration for direct measurement of TB burden have been implemented	Indicator Value: Yes/No	Yes (2014)	Yes	No
	10.2.4. #/% of operations research, evaluation or epidemiological assessment study results disseminated (stratified by level of dissemination: report, presentation, publication)	Numerator: Number of studies with results disseminated during the reporting period Denominator: Total number of studies conducted during the reporting period	4 (2014)	6	6
	10.2.6. % of operations research project funding provided to local	Description: This indicator measures the proportion of Numerator: Amount of operations research project funding provided	20% (2015)	50%	0%

	partner (provide % for each OR project)	to local partner by Challenge TB during a year Denominator: Total Challenge TB operations research budget during the year of assessment.			
	10.2.7. Operational research findings are used to change policy or practices (ex, change guidelines or implementation approach)	Indicator Value: Yes/No	Yes (2014)	Yes	Yes

3. Challenge TB Support to Global Fund Implementation

Current Global Fund TB Grants

Table 13: Global Fund performance rating

Name of grant & principal recipient (i.e., Tuberculosis NFM - MoH)	Average Rating*	Current Rating	Total Approved/Signed Amount**	Total Committed Amount	Total Disbursed to Date
<u>AFG-T-UNDP</u>	B1	B1	\$11 million	\$11 million	\$4.6 million
AFG-T-MOPH	N/A	N/A	\$2.2 million	\$2.2 million	\$0.5 million

* Since January 2011

** Current NFM grant not cumulative amount; this information can be found on GF website or ask in country if possible.

As a member of the country coordination mechanism (CCM), the MSH/CTB Project Director helped UNDP and the MOPH/NTP to shift their strategy and to subcontract all activities with sub recipients (SRs). The challenge of GF implementation is the bureaucratic UN disbursement process to SRs and the HSS component of the MOPH/government. This led to delayed implementation of activities or postponement of planned activities at the last movements.

CTB facilitated communication among the prime recipients (PRs), SRs, GF, and MOPH/NTP which led to enhanced activity implementation.

CTB also coordinated with the PRs, SRs, NTP, and MOPH through a TB taskforce and the CCM to ensure that planned activities were implemented on schedule and to propose an amendment to

the implementation plan. The implementation of activities was facilitated through biweekly TB task force meetings. CTB provided technical assistance to the NTP and SRS (GF) to conduct quarterly review workshops in 15 provinces and the SRs facilitated the related financial issues. CTB will assist the NTP with the planning and enhanced implementation of GF activities. That will lead to increased performance and rating.

4. Challenge TB Success Story

See technical brief and two success stories attached.

5. Operations Research

CTB assisted the NTP to promote operations research to enhance evidence-based decision-making. During Year 2, five operation research activities were conducted and also routine data use progressed (#1-5). One OR was started in Year 1 and finalized in Year 2 (#6). CTB assisted the NTP to develop 21 abstracts that were submitted to the 47th Union conference, and 13 (62%) were accepted for presentation at the conference in October 2016.

Table 14: Operational Research performance

#	Title of OR study	Local partners involved in study	Implementation Status	Key findings	Dissemination
1	What is the magnitude of TB among diabetic patients in Afghanistan?	*	Fieldwork will be completed at the end of October 2016. An abstract on the study was submitted to the 47 th Union conference	In total, 2,468 diabetic patients were screened, 157 cases (6%) were identified as presumptive TB and were tested through GeneXpert technology; 13 (8%) were diagnosed as BC and 3 (2%) were diagnosed as clinically confirmed pulmonary TB cases. All of the cases were put on treatment. This shows a TB case notification rate of 648 in 100,000 diabetic patients. The yield of TB among diabetes patients in Afghanistan is 3.5 times higher than in the general population. The results of ongoing research will be available in Year 3.	Abstract submitted to 47 th Union conference and will be submitted (with updated information) to the 48 th Union conference as well.
2	What is magnitude of TB among drug users in Afghanistan?	*	Fieldwork will be completed at the end of October 2016	Preliminary results show that 3,397 drug users were screened, 416 (12%) presumptive TB patients were identified and tested for TB. From these patients, 26 (6%) bacteriologically confirmed cases were found and one as Rifampicin resistance TB case was diagnosed. The yield of bacteriologically confirmed TB cases among drug users is 765 in 100,000	Abstract will be submitted to 48 th Union conference and scientific paper will be submitted to on international

				population that is just under 10 times the WHO estimate for BC TB cases.	journal during APA3
3	What is gender distribution of TB treatment outcomes in Afghanistan?	*	Completed	TSR was 91% among female TB patients versus 86% among male TB patients ($p < 0.01$). The female TB patients had a better TSR than the male patients. Males were more likely to die of tuberculosis, loss to follow up or transfer out compared to females	The abstract will be presented as an oral presentation at the 47 th Union conference in Liverpool, UK.
4	What is time interval from onset of symptoms and signs of TB till diagnosis and treatment initiation in Afghanistan?	*	Completed	There was a long delay from onset of symptoms to treatment initiation. Up to 50% of TB patients remained symptomatic even beyond five months of the onset of symptoms. Female patients stayed symptomatic for longer time periods compared with male patients.	The abstract will be presented as poster during 47 th Union conference in Liverpool, UK.
5	What is the accuracy of TB data in Afghanistan?	MSH	Fieldwork will be completed at the end of October 2016	NA	The abstract will be submitted to 48 th Union conference on TB and Lung health and CTB will publish the results in an international journal
6	Differences in yield of active versus passive contact screening in	*	Completed	Yield of TB was 2,976 in 100,000 household contacts of active contact investigation versus 1,714 in 100,000 household contacts through passive contact investigations (p value < 0.001).	The abstract will be presented as an oral presentation at the 47 th Union

	Urban DOTS supported cities, Afghanistan			<p>TB among household contacts is eight times higher than the WHO estimated incidence rate for Afghanistan</p> <p>The yield of active contact screening was twice that of passive screening.</p> <p>* active contact screening: the health care staffs attend the house of index TB cases;</p> <p>passive screening: the health care staffs ask the index TB cases to call the household to health facility for screening.</p>	conference in Liverpool, UK.
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* The CTB project released an expression of interest (EOI) to engage local partners and academic institutions in research, but none of the organizations applied. As a result, CTB and the NTP conducted the researches jointly.

6. Key Challenges during implementation and actions to overcome them

Table 15: Challenge and actions

Challenge	Actions to overcome challenges
Technical	
Monitoring implementation of CB-DOTS	Subcontract the implementation of CB-DOTS with NGOs. With local capacity, the NGOs can implement and monitor the implementation locally.
Documenting experiences from Afghanistan (publications)	Extensive TA from MSH HQ.
Administrative	
Deteriorating security situation	CTB promoted air travel, subcontracted CB-DOTS with NGOs and hired local consultants to implement activities. CTB can hire short term local consultants to implement the activities.
NTP staff turnover	During APA2, the NTP was faced with the challenge of high staff turnover. Two senior M&E and surveillance staff left the NTP for other organizations. In addition, the deteriorating security situation in 2016 challenged both the NTP and partners to execute activities as planned and provide sufficient support to provinces to monitor the implementation. CTB enhanced the TA to NTP to fill the gap.
Delayed CB-DOTS approval	Enhanced implementation through subcontracts with NGOs and the implementation of activities through CTB/MSH and in collaboration with the PHO team. There is little local capacity for OR implementation. During Year 2, CTB announced the EOI and no organizations or partners applied.

7. Lessons Learned/Next Steps

- The urban DOTS and PPM approach implemented in Kabul, Jalalabad, Kandahar and Herat cities contributed to a large increase in case notifications and an improved treatment success rate. This strategy will be expanded and sustained in large cities in the future. CTB will be further expanded to an additional city and will continue identifying innovative approaches to tackle the TB challenge in densely populated areas in the cities.
- The assessment of innovative approaches of active TB case findings among drug users and TB and diabetes resulted in improved TB case finding among the drug user and diabetes populations in Balkh provinces. CTB will ensure that it continues to reach these vulnerable populations during year three of the project and will expand DOTS coverage to screen mentally disabled patients, malnourished children and children suffering pneumonia and TB.
- CB-DOTS was successfully implemented by BPHS implementing NGOs and CHWs in 14 provinces during year two of the CTB project. CTB will continue using the same implementation strategies during APA3.
- The implementation of SOPs for the management of pediatric TB was addressed through an organized approach that included providing technical, diagnostic and treatment facilities to two children hospitals in Kabul, one in Mazar-e-Sharif, one in Herat and one in Kandahar. CTB procured and installed four digital X-ray Machines in these centers to facilitate TB diagnosis among children. The installation of these machines has resulted in an increase in pediatric TB case notification. As a result, this approach increased the number of children screened for TB and INH preventive therapy.
- The implementation of contact investigation in five provinces resulted in improved access to TB services for some of the most vulnerable populations in the country (children and women). Improved access to TB services resulted in improved diagnosis and use of IPT among children. Moving forward, CTB will enhance the CI and assist health care staff to adhere to this effective strategy. Specifically, CTB will assist the NTP and health care staff in the five provinces of Nangarhar, Balkh, Herat, Kabul and Kandahar to actively screen household contacts of TB patients.
- The challenge of NTP staff capacity at provincial and national levels was addressed through joint visits to provinces and by providing the NTP with an ownership role in the implementation of activities and evidence-based decision making (e.g. identifying weak facilities and provinces for joint monitoring visits).

- Through the involvement of BPHS implementing NGOs, the challenge of manual TB data reporting was addressed through the development and execution of an electronic TB data reporting system from the provinces to the national level and the integration of a TB information system (TBIS) in the HMIS unit of MOPH. The implementation of the electronic TB data reporting system resulted in improved TB data completeness and timeliness. A review of the electronic reporting system showed that 95% of TB data was reported electronically.
- On-the-job training was found to be an effective mechanism for building frontline staff capacity in the identification, diagnosis and treatment of TB patients as well as in SOP implementation for case detection, treatment and TBIC. CTB will ensure on-the-job training during year three of the project.
- The assessment of laboratory microscopes and training of laboratory technicians on maintaining the laboratory system and microscope functionality led to the mobilization of the health system and BPHS and EPHS implementing organizations to maintain microscope functionality. The microscope assessment and trainings also dramatically improved the External Quality Assurance score. This approach was appreciated by the NTP and MOPH at both national and provincial levels. CTB will continue this activity during APA3.
- The conduction of operations research led CTB to cover the vulnerable drug user and diabetes populations and also improved documentation from Afghanistan and contributed to the project's ability to find and treat more TB cases and ensured human rights issues. The operations research translated into a significant CTB Afghanistan presence at the 47th Union World Conference on Lung Health. CTB and the NTP submitted 21 abstracts and will be presenting 13 posters and oral presentations and hosting two symposiums. CTB will continue with the implementation of operations research during APA3 and will enhance documentation through abstract development and submission to the 48th Union Conference and through the development of 10 papers to international journals for publication.

Annex I: Year 2 Results on Mandatory Indicators as well as National Data on the Number of pre-/XDR-TB Cases Started on Bedaquiline or Delamanid

2.1.2 A current national TB laboratory operational plan exists and is used to prioritize, plan and implement interventions.	National APA 2	CTB APA 2	CTB APA 2 investment	Additional Information/Comments
Score as of September 30, 2016	1	N/A	None	
2.2.6 Number and percent of TB reference laboratories (national and intermediate) within the country implementing a TB-specific quality improvement program i.e. Laboratory Quality Management System	National APA 2	CTB APA 2	CTB APA 2 investment	Additional Information/Comments
Number and percent as of September 30, 2016	50% (1/2)	N/A	None	
2.2.7 Number of GLI-approved TB microscopy network standards met	National APA 2	CTB APA 2	CTB APA 2 investment	Additional Information/Comments
Number of standards met as of September 30, 2016	4 (1,3,5,6)	N/A	Limited	Standards 1,3,5 and 6 were met
2.3.1 Percent of bacteriologically confirmed TB cases who are tested for drug resistance with a recorded result.	National 2015	CTB 2015	CTB APA 2 investment	Additional Information/Comments
Percent (new cases), include numerator/denominator	0.02% (3/16,332)	NA	None	
Percent (previously treated cases), include numerator/denominator	3.5%(78/2,265)	NA		

Percent (total cases), include numerator/denominator	0.2% (81/37,001)	NA		
3.1.1. Number and percent of cases notified by setting (i.e. private sector, pharmacies, prisons, etc.) and/or population (i.e. gender, children, miners, urban slums, etc.) and/or case finding approach	National APA2	CTB APA2	CTB APA 2 investment	Additional Information/Comments
Number and percent	4,000	11,402	Substantial	
3.1.4. Number of RR-TB or MDR-TB cases notified	National APA 2	CTB APA 2	CTB APA 2 investment	Additional Information/Comments
Total 2015	81	NA	Limited	CTB only provided TA on TB infection control at MDR-TB wards and Afghan Japan communicable disease hospital
<i>Jan-Mar 2016</i>	20	NA		
<i>Apr-June 2016</i>	22	NA		
<i>Jul-Sept 2016</i>	25	NA		
To date in 2016	67	0		
3.2.1. Number and percent of TB cases successfully treated (all forms) by setting (i.e. private sector, pharmacies, prisons, etc.) and/or by population (i.e. gender, children, miners, urban slums, etc.).	National 2014 cohort	CTB 2014 cohort	CTB APA 2 investment	Additional Information/Comments
Number and percent of TB cases successfully treated in a calendar year cohort	30,508 (88%)	9,714 (88%)	Moderate	WHO global report 2015, page 125
3.2.4. Number of patients started on MDR-TB treatment	National APA 2	CTB APA 2	CTB APA 2 investment	Additional Information/Comments

Total 2015	81	N/A	None	
Jan-Mar 2016	20	N/A		
Apr-June 2016	22	N/A		
Jul-Sept 2016	25	N/A		
To date in 2016	67	0		
3.2.7. Number and percent of MDR-TB cases successfully treated	National 2013 cohort	CTB 2013 cohort	CTB APA 2 investment	Additional Information/Comments
Number and percent of MDR-TB cases successfully treated in a calendar year cohort	63% (29/46)	NA	None	
5.2.3. Number and % of health care workers diagnosed with TB during reporting period	National 2015	CTB 2015	CTB APA 2 investment	Additional Information/Comments
Number and percent reported annually	N/A	N/A	Limited	
6.1.11. Number of children under the age of 5 years who initiate IPT	National 2015	CTB 2015	CTB APA 2 investment	Additional Information/Comments
Number reported annually	10,048	7,047	Substantial	CTB promoted contact investigation and IPT initiation among children
7.2.3. % of activity budget covered by private sector cost share, by specific activity	National APA 2	CTB APA 2	CTB APA 2 investment	Additional Information/Comments
Percent as of September 30, 2016 (include numerator/denominator)	N/A	163,846 (5%)	Substantial	This cost is coming from private health facilities in 5 Urban DOTS cities (Kabul, Herat, Kandahar, Jalalabad and Mazar-i-Sharif) and they allocated specific place for DOTS room and cover the salary of TB focal points in their HFs

8.1.3. Status of National Stop TB Partnerships	National APA 2	CTB APA 2	CTB APA 2 investment	Additional Information/Comments
Score as of September 30, 2016	2	N/A	None	
8.1.4. % of local partners' operating budget covered by diverse non-USG funding sources	National APA 2	CTB APA 2	CTB APA 2 investment	Additional Information/Comments
Percent as of September 30, 2016 (include numerator/denominator)	N/A	NA	Substantial	This data is not available. CTB has not requested it from local partners yet. The AADA has \$455,000 from Global Fund.
8.2.1. Global Fund grant rating	National APA 2	CTB APA 2	CTB APA 2 investment	Additional Information/Comments
Score as of September 30, 2016	B1	N/A	Limited	CTB coordinates with GF the implementation of activities
9.1.1. Number of stock outs of anti-TB drugs, by type (first and second line) and level (ex, national, provincial, district)	National APA 2	CTB APA 2	CTB APA 2 investment	Additional Information/Comments
Number as of September 30, 2016	0	0	None	
10.1.4. Status of electronic recording and reporting system	National APA 2	CTB APA 2	CTB APA 2 investment	Additional Information/Comments
Score as of September 30, 2016	1	N/A	Substantial	
10.2.1. Standards and benchmarks to certify surveillance systems and vital registration for direct measurement of TB burden have been implemented	National APA 2	CTB APA 2	CTB APA 2 investment	Additional Information/Comments
Yes or No as of September 30, 2016	No	N/A	Moderate	NTP with assistance from CTB will do it during Year 3. The first such exercise done in 2014 with assistance from TB CARE I

10.2.6. % of operations research project funding provided to local partner (provide % for each OR project)	National APA 2	CTB APA 2	CTB APA 2 investment	Additional Information/Comments
Percent as of September 30, 2016 (include numerator/denominator)	N/A	0%	None	CTB released the expression of interest for two OR, but none applied for this fund. Thus, CTB conducted the OR with CTB team capacity: Magnitude of TB among Diabetes and drug addicts in Afghanistan. CTB worked with NTP together to conduct it. The CTB and NTP staffs are authors of all these ORs
10.2.7. Operational research findings are used to change policy or practices (ex, change guidelines or implementation approach)	National APA 2	CTB APA 2	CTB APA 2 investment	Additional Information/Comments
Yes or No as of September 30, 2016	N/A	Yes	Moderate	The TB and Diabetes research led to development of TB and Diabetes standard operation procedure for it
11.1.3. Number of health care workers trained, by gender and technical area	CTB APA 2		CTB APA 2 investment	Additional Information/Comments
			Substantial	
	# trained males APA 2	# trained females APA 2	Total # trained in APA 2	Total # planned trainees in APA 2
1. Enabling environment	480	350	830	800
2. Comprehensive, high quality diagnostics			0	
3. Patient-centered care and treatment	552	102	654	445

4. Targeted screening for active TB			0	
5. Infection control	230	100	330	200
6. Management of latent TB infection			0	
7. Political commitment and leadership			0	
8. Comprehensive partnerships and informed community involvement			0	
9. Drug and commodity management systems			0	
10. Quality data, surveillance and M&E	140	0	140	120
11. Human resource development			0	
Other (explain)	303	20	323	247
Other (explain)			0	
Grand Total	1705	572	2277	1812
11.1.5. % of USAID TB funding directed to local partners	National APA 2	CTB APA 2	CTB APA 2 investment	Additional Information/Comments
Percent as of September 30, 2016 (include numerator/denominator)	N/A	USD 1,004,870 (28%)	Substantial	This amount was paid to local organizations to implement CB-DOTS in 14 provinces

Year/Quarter	Number of pre-/XDR-TB cases started on BDQ nationwide	Number of pre-/XDR-TB cases started on DLM nationwide	CTB APA 2 investment	Additional Information/Comments
Total 2014	0	0	None	

Total 2015	0	0		The MSF is going to start the shorter, nine months regimen, for MDR TB patients in Kandahar and surrounding provinces. Afghanistan has not started BDQ or DLM so for.
Jan-Mar 2016	0	0		
Apr-Jun 2016	0	0		
Jul-Aug 2016	0	0		
To date in 2016	0	0		

Annex II: Status of EMMP activities

Year 2 Mitigation Measures	Status of Mitigation Measures	Outstanding issues to address in Year 3	Additional Remarks
CTB-Afghanistan will ensure that the digital X-ray machines are installed according to international and national standards in two hospitals.	The national standards for the installation of digital x-ray machines were applied. CTB visited the sites and provided comments and suggestions to the X-ray machine vendor to ensure that national standards were met. For example, in Kandahar, the vendor did not initially cover one wall with a lead sheet. After a discussion about national standards, the vendor agreed to cover the wall with a lead sheet.	None	
<p>CTB will develop a TB infection prevention and laboratory biosafety Job Aid (pocket guide) for professional health care providers</p> <p>CTB will ensure proper waste management at HFs during supervision and that national biosafety guidelines and SOPs are implemented</p>	<p>The job aids have been developed and were disseminated country wide</p> <p>This is part of the supervisory visit checklist and CTB ensures that there is proper waste management in its intervention areas</p>	None	

Addition of a session on TB infection control at the community level in the training curricula of CHWs under CTB CB-DOTS	The session has been added and was taught to CHWs during their training		
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Annex III: Accepted Union Conference abstracts, 2016 (all posters are attached separately)

Title: Impact of TB infection control on patient waiting time and early diagnosis at health facilities in 15 provinces of Afghanistan

Author(s): A Momand¹, D Safi¹, MK Rashidi¹, M Shefa¹, N Samadi¹, M Sayedi¹, PG Suariz², K Seddiq³

Institute(s): 1Management Science for Health, Challenge TB, Kabul, Afghanistan, 2Management Science for Health, Challenge TB, Virginia, VA, United States of America, 3Ministry of Health (MoH), National Tuberculosis program, Kabul, Afghanistan, Fax: 700607545. email: amomand@msh.org

Background:

People who work or receive care in health facilities (HFs) are at higher risk M. Tuberculosis infection. Therefore Challenge TB (CTB) project assisted national TB program (NTP) to implement Tuberculosis (TB) infection control (IC) measures at HFs. In 2015 an assessment conducted in HFs in 11 provinces to determine the impact of TB IC on patient waiting time from his/her arrival to departure and treatment initiation.

Intervention:

The CTB helped NTP to train local staff, assess risk of TB transmission, establish TB IC committee at HFs, develop TB IC pocket guide, develop job aids, redesign HFs, collect and analyze data to monitor progress. We selected convenient samples of 180 (intervention =108, control=72) interviews of suspect TB cases from intervention and control facilities in 45 HFs in 11 provinces. We utilized questionnaire, documented patients arrival time, detection as suspect, sputum collection time, and diagnosis and treatment initiation.

Results and lessons learnt:

In intervention HFs, mean suspect identification time from his/her arrival was 35 minutes and their departure was 75.7 minutes. Also mean sputum collection of three samples took 32 hours and time to diagnosis to treatment initiation was 40 hours. Contrary in control HFs, mean suspect identification time was 62 minutes and their departure were 182 minutes, mean sputum collection time was 65 hours and diagnosis and treatment was 72.3 hours

Conclusions:

The time interval of TB suspect identification from arrival to departure and from diagnosis to treatment initiation was significantly low in intervention HFs, therefore TB IC control measures enhancement and implementation is recommended in all similar settings

Table 1: Key findings of assessment on impact of TB infection control on patients waiting time at health facilities

Variables	Intervention HFs	Control HFs
Sample size	80 patients	72 patients
TB presumptive detected time	30.1 minutes	58. 2 minutes
Time until presumptive TB patient departs after first sample collection	57.7 minutes	176.1 minutes
Time collected sputum sample at least three from detected presumptive cases	32 hours	73 hours
Required time by smear Microscopy and recording and reporting	30 minutes	56 minutes
Time from diagnosis to starting patient on treatment	40 hours	79 hours

Title: Exploring gender distribution of tuberculosis treatment outcomes in Afghanistan: a cross sectional study

Author(s): GQ Qader¹, A Momand¹, MK Seddiq², MK Rashidi¹, SD Mahmoodi³, AB Maseed¹, MK Ayubi², PG Suarez⁴

Institute(s): *1Management Science for Health, Challenge TB, Kabul, Afghanistan, 2Ministry of public Health, National TB Control program, Kabul, Afghanistan, 3Ministry of Health (MoH), National Tuberculosis program, Kabul, Afghanistan, Management Science for Health, Challenge TB, Arlington, VA, United States of America. email: gqader@gmail.com*

Background:

Afghanistan is a country that reported higher proportion of TB cases among women. In 2015, they made 62% of all reported TB cases. However, treatment outcomes among female and male TB cases were not known as routine TB reporting system does not capture it. objective of assessment was to explore TB treatment outcomes by gender.

Methodology:

This was a cross-sectional assessment conducted in 12 provinces and using random cluster sampling of health facilities. Data from all health facilities in the cluster was collected and analyzed. The team reviewed records of study subjects (TB patients that completed their treatment). Researchers collected the data from TB treatment register of health facilities in Jan 2016.

Results:

Treatment records of 3,221 study subjects reviewed and found that treatment outcomes for 2,877 (89.3%) TB patients were evaluated. Among them, 3,047 (95%) patients were of category I and 128 (4%) in category II and for 46 (1%) of TB patients the treatment category was missed. In brief, 1,060 (36.8%) male and 1817 (63.2%) female TB patients completed their treatment and their outcomes were evaluated. 652 male and 915 males TB patients completed their treatment and their treatment success rate was 91% for female and 86.1% male patients (pvalue 0.00003, Odd ratio 1.63) (table 1). Also, death rate was 1% (24) for female and 3% for male and 2% lost to follow up for female and 3% for male, transfer out rate was 5% for female and 8% for male TB patients.

Conclusion and recommendations:

The female TB patients had better treatment outcomes than male. Also, males were more likely to die of tuberculosis, lost to follow up or transferred out compared to female. Thus, we strongly recommend to explore characteristics of male and female TB patients to enhance treatment outcomes among both gender.

Table 1: Results of key outcomes of gender distribution

Variable	Female	Male	P- value
TB patients started treatment	2000	1185	NA
TB patients evaluated for treatment outcome	1817 (91%)	1060 (89%)	P = 0.1
Treatment success rate (TSR)	1652 (91%)	915 (86%)	P < 0.01
Treatment failure rate	22 (1%)	7 (1%)	P=0.7

Death rate	24 (1%)	30 (3%)	P <0.003
Lost to follow up rate	29 (2%)	27 (3%)	P = 0.05
Transferred out rate	90 (5%)	81 (8%)	P <0.002

Title: Outcomes of Institutionalizing DOTS in urban settings on tuberculosis case notification and treatment: The case of Kandahar city

Author(s): GQ Qader¹, MK Rashidi¹, SD Mahmoodi², MK Seddiq², A Hamim³, SM Sayedi¹, N Persaud⁴, PG Suarez⁴

Institute(s): *1Management Science for Health, Challenge TB, Kabul, Afghanistan, 2Ministry of public Health, National TB program, Kabul, Afghanistan, 3Management Sciences for Health, Challenge TB, Kabul, Afghanistan, 4Management Science for Health, Challenge TB, Arlington, VA, United States of America. email: qader@gmail.com*

Background:

Afghanistan is home to 2,400 registered health facilities and many private practitioners at private clinics or hospitals. The private and other sectors' facilities usually do not apply Ministry of Health policies and procedures that resulted in low TB case notification in Kandahar city. The aim of this assessment was to evaluate the outcomes of urban DOTS implementation in Kandahar city on case notification.

Intervention:

In June 2015, CTB/NTP conducted assessment and identified 72 public facilities, one prison, 13 private hospitals, 410 pharmacies, and 320 private practitioners providing health services in Kandahar. The team introduced and launched urban DOTS approach to provincial health team and covered five private hospitals, one public hospital, and a prison. TB services delivery was institutionalized: trained nurses, doctors, and lab technicians on standard operating procedures for TB case detection and treatment, standardized recording and reporting system, supplied reagents, and provided supportive supervision and monitoring.

Results and lessons learnt:

in 2015, 11,134 individuals attended the 7 urban DOTS facilities and they identified 542 (5%) presumptive TB cases and examined, 53 (10%) were bacteriologically confirmed, and 167 (31%) of all forms TB cases initiated treatment. Case notification for bacteriologically confirmed and all forms of TB were 476 and 1,463 in 100,000 outpatient attendance (OPD) attendees, respectively. While in 2014, 480,226 OPD attended 30 public facilities that notified 8,919 (1.9%) presumptive TB patients, 660 (7%) bacteriologically confirmed patients, and 1,349 all forms of TB cases. TB case notification for bacteriologically confirmed and all forms of TB cases was 137 and 281 in 100,000 OPD attendees.

Conclusion and recommendations:

Urban DOTS implementation resulted in threefold improvements in presumptive TB case identification and case notification rates for bacteriologically confirmed and fivefold for all forms. We recommend expansion of urban DOTS to similar settings in Afghanistan and elsewhere in the world.

Title: Implementing standard operation procedures for tuberculosis (TB) case detection: a solution to tackle TB in 13 provinces of Afghanistan

Author(s): GQ Qader¹, MK Rashidi¹, SD Mahmoodi², MK Seddiq², MH Akhgar², SM Sayedi³, N Persaud⁴, PG Suarez⁴

Institute(s): *1Management Sciences for Health, Challenge TB, Kabul, Afghanistan, 2Ministry of public Health, National TB program, Kabul, Afghanistan, 3Management Science for Health, Challenge TB, Kabul, Afghanistan, 4Management Science for Health, Challenge TB, Arlington, VA, United States of America. email:ggqader@gmail.com*

Background

Afghanistan has been failing to identify 45% (25,000) of the incident number of TB cases since 2006 and presumptive TB (PTB) case identification in public facilities was 1.5%. This assessment explored the contribution of implementing standard operation procedures (SOP) on TB case notification in 13 provinces.

Intervention:

TBCAP, TBCARE I and Challenge projects assisted NTP to develop/update national TB guidelines and SOPs for case detection and treatment, train health workers and on-the-job training, and provide supportive supervision. This led to a strengthened triage of clients; review of health facilities' performances; data analysis; and shared findings with primary health care implementing organizations and provincial health teams. The assessment team reviewed TB data from 2006-2015 and compared performance of 13 intervention and 21 other provinces.

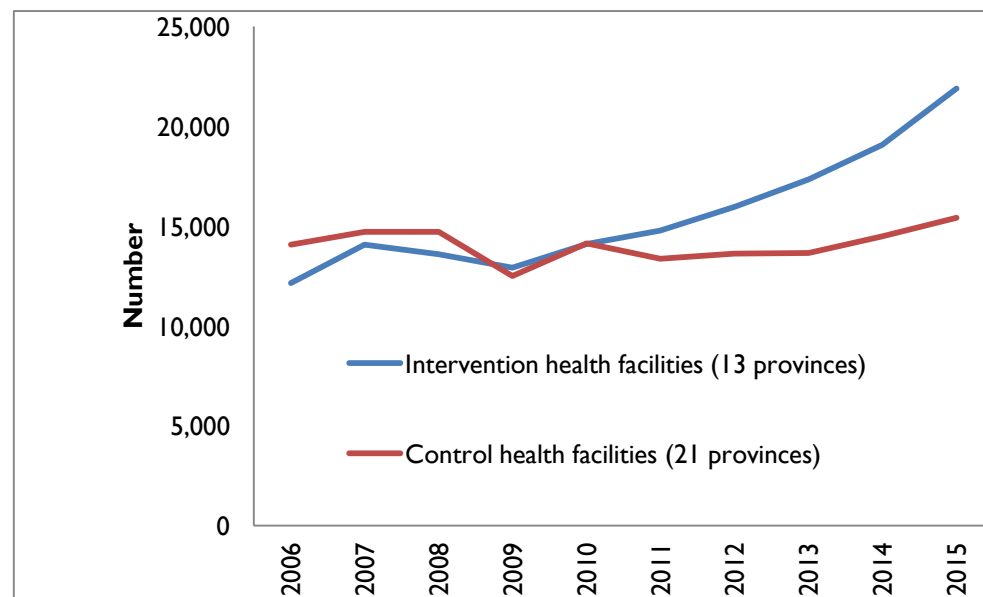
Results:

During 2009-2015, 1.169 million PTB patients attended health care facilities, 620,231 (53%) to 13 interventions and 549,704 (47%) to 21 provinces. In the intervention area, PTB case identification improved by 186%, from 49,630 (2009) to 142,147 (2015). Bacteriologically confirmed TB case notification increased 42%, from 6139 (2009) to 8,720 (2015); all forms of TB case notification advanced 69%, from 12,454 to 21,095 (Table 1). However, in 21 provinces, there was an 181% increase in PTB patient identification: 19% for bacteriologically confirmed and 11% (13,545 in 2009 to 15,515 in 2015) for all forms of TB cases. The increase in TB case notification at intervention provinces was 80%, though, for 21 provinces, it was 10%, from 14,059 (2006) to 15,415 (2015) (Figure 1).

Conclusions and key recommendations:

SOP implementation is an effective approach to increase access to TB service delivery to reach PTB patients for screening, consequently, improving TB case notification for both bacteriologically confirmed and all forms of TB cases. We recommend the application of SOPs for TB case detection in countries with similar settings.

Figure 1: TB case notification in intervention and control provinces, 2006-2015



Title: Time from symptom onset to the initiation of treatment for Tuberculosis patients in Afghanistan in 2015

Author(s): GQ Qader¹, AB Maseed², MK Rashidi², MK Seddiq³, SD Mahmoodi³, A Momand², A Hamim², PG Suarez⁴

Institute(s): ¹Management Sciences for Health, Challenge TB, Kabul, Afghanistan, ²Management Science for Health, Challenge TB, Kabul, Afghanistan, ³Ministry of public Health, National TB Control program, Kabul, Afghanistan, ⁴Management Science for Health, Challenge TB, Arlington, VA, United States of America.

email: gqader@gmail.com

Text: Background:

Afghanistan is home for 60,000 new TB patients in a year. National Tuberculosis program (NTP) notified 62% of estimated TB cases in 2015. Further, there has not been any study to show the time interval from onset of TB symptom till diagnosis and treatment in Afghanistan. The aim of this study was to identify the time interval from symptoms till diagnosis.

Methodology:

This was a cross sectional study used a random cluster sampling of health facilities from 12 provinces that represents factors like security, culture and geographic location. The study team reviewed records of TB patients that were diagnosed and registered at public and private health facilities in 2015. Researchers collected data from TB register of health facilities.

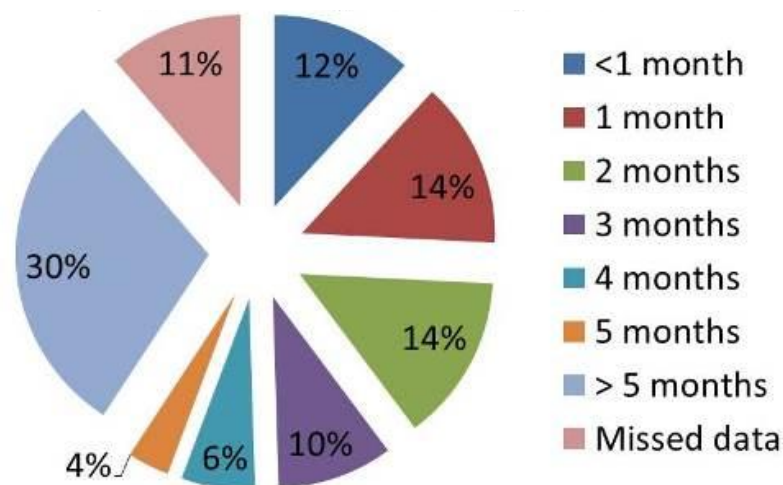
Results:

During Oct-Dec 2016, 3,221 patients diagnosed and TB treatment initiated and found that 30% of TB patients remained symptomatic until five months, 12% diagnosed in less than one month, 14% diagnosed at one and two months and for 10% it took three months till treatment initiation (Graph1). Briefly, 26% of patients diagnosed in less than one month, 50% till three months, 60% until five months and rests diagnosed afterwards. Further, 42% male and 36% female TB patients diagnosed till two months and 30% male and 35.3% female diagnose after five months. Also, there was no difference in time interval from symptoms onset until diagnosis of pulmonary and extra pulmonary TB patients.

Conclusion and recommendation:

Among study subjects, there was an unacceptably delay from onset of symptoms and treatment initiation and female patients stayed symptomatic longer compared male patients. Also, there was no difference in delay of symptoms onset till diagnosis/treatment between pulmonary and extra pulmonary TB patients. Thus, we recommend triage for presumptive TB patients and differential diagnosis of TB among symptomatic clients at public and private facilities.

Figure 1: Time interval from TB symptoms until diagnosis and treatment of TB patients in Afghanistan, 2015



Title: Contribution of Health Facilities (HFs) patients triaging to the case detection trend in 15 provinces of Afghanistan

Author(s): A Momand¹, GQ Qader¹, MK Rashidi¹, PG Suarez², L Rahman³, D Safi¹, A Ali⁴, K Ayoubi⁵

Institute(s): 1Management Science for Health, Challenge TB, Kabul, Afghanistan, 2Management Science for Health, Challenge TB, Arlington, VA, United States of America, 3Ministry of public Health, National TB program, Kabul, Afghanistan, 4Management Science for Health, Challenge TB, Kabul, Afghanistan, 5Ministry of Health (MoH), National Tuberculosis program, Kabul, Afghanistan, Fax: 700607545. email: amomand@msh.org

Background and challenges to implementation:

At health facilities (HFs) Tuberculosis (TB) patients were not identified, separated and fast tracked to increase case detection and minimize exposure to others. To improve these indicators national TB program (NTP) has been working to implement TB infection control (TB IC) measures at 205 HFs of 15 provinces with support from USAID funded Challenge TB (CTB).

Intervention or response:

The CTB helped the NTP to implement TB IC measures at HFs by health staff through on the job training where health staff took to the DOTs learning centers to practically assess the HFs design, TB transmission, patient flow, TB patients triage, record and reporting and to copy the best practices. Also disseminated 3000 copies TB IC pocket guide and laboratory biosafety manual, disseminated 26000 job aids, redesigned 190 HFs, collected and analyzed data to monitor progress. In 2016, CTB and NTP conducted an assessment to determine if the HFs triage system had contributed to improved TB suspect identification, testing and case detection. The team analyzed data recorded between 2014 and 2015 at 103 of the 205 HFs where they had implemented TB triaging activities.

Results and lessons learnt:

From 2014 to 2015, the number of TB suspect identified at the 103 HFs increased by 109% (from 61259 in 2014 to 66482 in 2015). Among those identified suspect, the number tested for TB increased by 108% (from 59662 in 2014 to 64277 in 2015). Similarly the number of new sputum smear positive TB cases increased by 120 % (from 4376 in 2014 to 5245 in 2015)

Conclusions and key recommendations:

The TB IC activities, mainly triage contributed to improved suspect identification and case detection. These TB IC control measures should be maintained in 205 HFs and expanded to additional HFs to further improve TB control in Afghanistan

Variables/Year	2014	2015	% changed (2014-2015)

Number of HFs covered by TB IC	103 (29%)	103 (29%)	
Number of TB suspect identified	61,259	66,482	9%
Number of TB suspect tested	59,662	64,277	8%
Number of new sputum smear positive case notified	4,376	5,245	20%

Title: Differences in yield of active versus passive contact screening in Urban DOTS supported cities, Afghanistan

Author(s): A Hamim¹, SM Sayedi¹, GQ Qader¹, L Manzoor², A Momand¹, M Shefa¹, K Rashid¹, P Suarez³

Institute(s): *1Management Science for Health, Challenge TB, Kabul, Afghanistan, 2Ministry of Health, NTP, Kabul, Afghanistan, 3Management Science for Health, Challenge TB, Arlington, VA, United States of America, Fax: Nil. email: ahamim@msh.org*

Background:

National guidelines recommend contact investigation for all bacteriologically confirmed pulmonary TB cases, but a passive strategy for TB contact management is used in Afghanistan. Challenge TB project implemented active contact screening July December 2015 in four Urban DOTS cities (Kabul, Herat, Kandahar and Jalalabad), resulting in significant increases in TB case notifications and use of Isoniazid preventive therapy. The objective of this study was to compare the results of active contact screening in intervention areas to passive contact screening in the control area.

Methodology:

In the control area, only households of index cases were asked to come to health facilities, and most did not arrive. Intervention strategies implemented included training healthcare workers, providing supportive supervision, collecting data and providing feedback, and contacting a random sample of 10% of TB index case contacts for cross check. All household contacts of bacteriologically confirmed TB cases (TB index cases) were visited in four provinces of Kabul, Kandahar, Herat and Nangarhar by a health facility member. Contacts with a cough for more than two weeks and sputum were taken to the nearest TB diagnostic center for sputum examination. All children under 5 were entered in the TB contact register and received INH preventive therapy.

Results:

During active contact screening in the intervention areas, 2,014 TB index cases were registered and 10,183 of their household contacts were screened. Among them, 303 (2.98%) clinically confirmed TB cases were identified and 1,824 children under 5 were put on Isoniazid preventive therapy. In the control area, 5,403 index TB cases were registered and 20,446 household contacts were screened. Among them, 290 (1.42%) were clinically diagnosed with TB ($p < 0.0000001$), and 1,791 children under 5 received Isoniazid preventive therapy. TB case yield among household contacts in the intervention and control areas was 2,976 and 1,418 per 100,000 respectively.

Conclusions:

TB among household contacts is eight times higher than WHO estimated incidence cases. Active screening almost tripled TB case detection and provision of Isoniazid preventive therapy for children under 5 compared to passive contact screening in the control area. We recommend implementation of active contact screening nationwide.

Tabel 1: Yield by screening approach

	Contact screening approach		P-value
Parameters	Active	Passive	
Number of Index cases approached	2,014	5,403	NA
Number of HH contacts screened	10,183	20,446	NA
Number (%) of confirmed TB patients	303 (2.98%)	290 (1.42%)	<0.001

Yield per 100,000 contact population	2,976	1,418	<0.001
Number of <5 year children on IPT	1,824	1,791	<0.001

Title: Effectiveness of active TB case finding among prisoners in two prisons in Afghanistan

Author(s): A Hamim¹, SM Sayedi¹, GQ Qader¹, N Ahmadzada², L Manzoor², M Shefa¹, K Rashidi¹, P Suarez³

Institute(s): *1Management Science for Health, Challenge TB, Kabul, Afghanistan, 2Ministry of Health, NTP, Kabul, Afghanistan, 3Management Science for Health, Challenge TB, Arlington, VA, United States of America, Fax: Nil. email: ahamim@msh.org*

Background:

Based on Ministry of Interior statistics, there were almost 30,000 prisoners in Afghanistan in 2015, and screenings from 2011 revealed extremely high incidence of TB among prisoners compared to the general population. National Tuberculosis Control Program (NTP) and partners initiated active TB case finding among prisoners in 8 provinces in 2011. Among 3,000 prisoners, 233 (8%) were identified as presumptive TB cases, and 11 (5%) were bacteriological confirmed TB patients. The objective of this study is to evaluate the role of new active case finding approaches (sputum smear microscopy and digital X-Ray) in prisons.

Intervention:

Challenge TB began TB services provision on October 2014 in PuliCharkhi prison in Kabul and Bigram prison in Parwan provinces with approximately 8,945 prisoners. The intervention included:

- TB training for health care staff
- Establishing TB diagnostic and treatment centers in each prison
- Sputum smear microscopy and mobile digital X-Ray for diagnosis
- Patients isolated and treatment provided and monitored at months 2, 3, 4, and at end of treatment
- Standard Operation Procedure for prison and IEC materials developed and distributed
- Awareness activities to reduce stigma

NTP and Challenge TB technical teams used standardized tools to collect, review, and analyze data from October 2014 December 2015 from both prisons.

Results:

Among 8,945 prisoners, 749 presumptive TB cases identified and referred to digital X-Ray and sputum smear microscopy, resulting in 179 clinically confirmed TB cases (2,001/100,000 persons). This is much higher than the estimated incidence of TB in the general population (189/100,000). Among 749 presumptive TB cases, 126 (16.8%) were bacteriologically confirmed TB cases. 28 of 30 (93%) bacteriologically confirmed TB cases completed their treatment, a higher treatment success rate than 89% at national level.

Conclusion:

Active TB service provision resulted in significant improvements in TB case detection and treatment completion rates among prisoners. We recommend scaling up TB services to all prisons in provinces.

Title: Effectiveness of tuberculosis infection control committees on implementation of TB Infection
control measures at health facilities in Afghanistan

Author(s): A Momand¹, GQ Qader¹, MK Rashidi¹, D Safi¹, B Maseed¹, M Zafari², F Bakhtani¹, AL Faqiri²

Institute(s): *1Management Science for Health, Challenge TB, Kabul, Afghanistan, 2Ministry of Health (MoH), National Tuberculosis program, Kabul, Afghanistan, Fax: 700607545. email: amomand@msh.org*

Background:

People who work or receive care in health care settings are at higher risk M. Tuberculosis infection. Therefore, Challenge TB (CTB) project assisted National Tuberculosis Program (NTP) to implement TB infection control (TB IC) measures at 205 health facilities (HFs) by TB committees in 15 provinces. In 2015, an assessment conducted in HFs in 9 provinces to determine the effects of this approach on implementation of TB IC measures at HFs.

Intervention:

The CTB assisted NTP to establish TB IC committees, integrate TB IC plan into general infection prevention plan, develop TB IC pocket guide, develop Job aids, redesign HFs and train staff. The CTB and NTP assessed 135 (34%), (90 (44%) from intervention and 45 from control) of 400 HFs, using a data collection tool. The team evaluated each facility's administrative, environmental, and personal protective controls through observation and interview with committees' members, review of charts and air flow within the rooms

Results :

The intervention HFs implemented 87.5% of the 7 TB IC standards, while control HFs met only 5% of them. For example, 100% of intervention HFs had a TB IC plan; 95% redesigned, 100% had sputum collection area, 75% implemented cough triage of clients, 76% of both suspected and confirmed TB patients used face mask and 90% of HFs separated patients and 77% had cough etiquette measure implementation. Contrary, in control facilities, 0% had TBIC plan, 10% redesigned, 5% had sputum collection area, 6% implemented cough triage, 12% of suspect and confirmed TB patients used mask. Also, only 2% of patients were separated and 5% implemented cough etiquette.

Conclusions;

The TB IC committees played an important role in promoting TB IC standards that ultimately made working environment safer for staffs, clients and communities. Thus, we recommend it as a priority action at HFs and similar settings.

Variables	Facilities with TB IC Interventions (Intervention HFs)	Facilities without TB IC interventions (Control HFs)
Sample size	90	45
Existing TB IC plan	100%	0%
Existing ventilated sputum collection area	100%	5%
Health facilities redesigning to maximize ventilation and implement patient flow	95%	10%
Coughing triage	75%	6%
Patient separation	90%	5%
Cough etiquette/respiratory hygiene	77%	7%
Face mask used by patients	76%	2%

Title: Exploring level of knowledge of health care workers (HCWs) on TB infection control measures in 15 provinces of Afghanistan

Author(s): A Momand¹, GQ Qader¹, MK Rashidi¹, D Safi¹, H Momand², N Ahmadzada³, PG Suariz⁴, AHamim¹

Institute(s): 1Management Science for Health, Challenge TB, Kabul, Afghanistan, 2Managment Sience forHealth, Challeng TB, Kabul, Afghanistan, 3Ministry of Health (MoH), National Tuberculosis program, Kabul, Afghanistan, 4Management Science for Health, Challenge TB, Virginia, VA, United States of America, Fax: 700607545. email: amomand@msh.org

Text: Background and challenges to implementation:

Hospital acquired infections are a major public health problem in Afghanistan and their prevention has been made a priority by WHO. The aim of the assessment was to better understand the barriers and help guide optimal implementation of infection control practices (ICPs) in 80 of 205 health facilities; we wanted to gather baseline nformation regarding ICPs.

Intervention or response:

The Challenge TB (CTB) and national tuberculosis program (NTP) implemented a cross sectional baseline evaluation of health care workers knowledge, attitudes and practices of Tuberculosis infection control and hand hygiene (HH) between January-Feb 2016 at 80 health facilities in 15 provinces. A standardized questionnaire was administered to HCWs (nurses and physicians). Knowledge items were scored as correct/incorrect. Attitude and practice items rated from 5 to 3 points rating scales. Descriptive statistics were used to assess responses

Results and lessons learnt:

230 surveys were completed by nurses (40%), physicians (35%), and laboratory technicians (lab tech) (25%). 70% were male. 44% of HCWs did not believe HH was necessary before patient contact. HH practices were variable, only 7% of HCWs reported regularly performing HH prior to patient contact while 49% reported performing HH after patient contact. Barriers to HH included lack of soap and running water (76%).TB IC knowledge was excellent among HCWs (>90% correct>.

Most HCWs agreed they were at high risk of acquiring TB from patients (71%) that TB IC can prevent TB transmission within their hospitals (92%) and TB IC is important to protect patients (95%). Only 15% HCWs wore regularly respirators when carrying for TB patients. Limited access to masks and poor design of HFs building to isolate infectious TB patients and maximize ventilation were the only limitation of TB IC. Half of HCWs felt UV lights may be harmful.

Conclusions and key recommendations:

Rising awareness among HCWs about the importance and proper practice of HH along with improving hand antiseptic soup may help improve patient safety. Additionally improved infrastructure is needed to improve TB IC and allay HCWs concerns of acquiring TB in hospitals

Title: Description of attributes of multi-drug resistance tuberculosis cases in Afghanistan: a cross-sectional explanatory assessment

Author(s): H.Amirzada¹, GQ Qader², MK Rashidi¹, SD. Mahmoodi¹

Institute(s): 1Ministry of Health (MoH), National Tuberculosis program, Kabul, Afghanistan, 2Management Science for Health, Challenge TB, Kabul, Afghanistan,

Background:

Afghanistan is home for 60,000 new drug-susceptible TB and 1,250 drug resistance TB in a year. During 2010-2014, NTP was sending presumptive MDR-TB sputum samples to diagnosis and drug sensitivity test (DST) to Pakistan. Since 2015, NTP started GeneXpert tests and DST in Kabul. The aim of this assessment was to describe attributes of MDR-TB cases and their treatment outcomes in Afghanistan.

Methodology:

The assessment team reviewed the data from 2010-2015 and used MDR-TB registers and reporting forms, transferred data to SPSS and analyzed. The sample size was all MDR-TB cases registered and started treatment.

Results:

During 2011-2015, NTP registered and started treatment to 297 MDR-TB cases. Mean age was 35.7 year and 100(33%) among 15-24 years, 85 (28.6%) in age group 25-34, 47 (15%) in age 35-44, 9% (28) and 20% (36) in age group over 55 years. There were 171 (57.6%) female and 126 (42.4%) male. Also, 295 (99%) were pulmonary and 2 (1%) were extrapulmonary TB cases, of them, 224 (75%) had failed in category II and 11 (4%) were relapse cases before diagnosed as MDR-TB. Further, time from onset of symptoms till diagnosis till treatment for 58 (20%) was less than one year, for 144 (48.4%) was between 1-2 year, for 85 (29%) was between 3-4 year and for

5 (1.6%) was more than five years. Moreover, 107 (36%) of MDR-TB patients completed their treatment period and outcomes were 70% treatment success rate, 11% defaulted, 13% died, 1% failed, 4% transferred out and 1% still under treatment.

Conclusion:

MDR-TB affected people at younger age. Also, there was unacceptable time from symptoms onset till diagnosis of MDR-TB. Pulmonary compared to extra pulmonary TB cases, were more likely to develop MDR-TB and there was higher proportion of defaulted and transferred out rate. Thus, we recommend expansion of MDR-TB diagnosis and treatment to rests of country and testing of TB cases failed in first category.

